

Internet of Things
FTC Workshop
November 19, 2013
Segment 4
Transcript

>> WE'RE GOING TO GET STARTED.
THIS IS PANEL THREE.
THIS IS ON THE CONNECTED CARS.
THIS IS PANEL THREE ON CONNECTED
CARS.

I'M KAREN JAGIELSKI AND I AM
JOINED BY MY CO-MODERATOR.
WIRE GOING TO INTRODUCE THE
PANELISTS IN JUST A MINUTE.
THIS IS A SHORT PANEL.
WE ONLY HAVE AN HOUR, SO WE'RE
GOING TO QUICKLY GET THROUGH
INTRODUCTIONS AND THEN GET TO
THE HEART OF THE SITUATION.
SO WITH THAT, I'D ASK MY
PANELISTS TO INTRODUCE
THEMSELVES AND TELL US JUST A
LITTLE BIT ABOUT YOURSELVES.

>> HI, MY NAME IS TADAYOSHI
KOHNO AND I'M A PROFESSOR AT THE
UNIVERSITY OF WASHINGTON.
MY AREA OF EXPERTISE IS COMPUTER
SECURITY.

ONE FOCUS WE LOOK AT IS SECURITY
FOR CYBER SYSTEMS FOR MEDICAL
DEVICES, HOME AUTOMATION,
CHILDREN TOISES AND FOR PURPOSES
OF TODAY TALKING ABOUT THE WORK
WE'VE BEEN DOING FOR THE
SECURITY AND PRIVACY OF THE
MODERN AUTOMOBILE.

>> I'M CHRIS WOLF, FOUNDER AND
CO-CHAIR OF THE FUTURE PRIVACY
FORUM.

I LEAD THE PRIVACY PRACTICE AT
HOGAN LEVELS AT THE FUTURE
PRIVACY FORUM.

WE'VE BEEN DOING A LOT OF WORK
IN THE FIVE YEARS WE'VE BEEN
AROUND ON THE INTERNET OF THING
STARTING WITH OUR EFFORTS ON THE

CODE OF CONDUCT ON THE SMART GRID, MORE RECENTLY DEALING WITH RETAIL LOCATION STANDARDS AND WE ALSO HAVE A CONNECTED PAR PROJECT THAT'S GOING ON AT FBF. TODAY WE PUBLISHED A PAPER CALLED AN UPDATED PRIVACY PARADIGM FOR THE INTERNET OF THINGS AND I GUESS I'LL TALK A LITTLE BIT ABOUT THAT DURING THE PANEL.

>> THAT'S ALSO AVAILABLE OUT FRONT.

THERE'S COPIES THERE.

>> I'M JOHN NIELSON WITH TRIPLE A.

I'M DIRECTOR OF AUTOMOTIVE ENGINEERING AND REPAIR. TRIPLE A'S INTEREST IN THE CONNECTED CARS REALLY CENTERS AROUND THE MOTORISTS TO USE THIS TECHNOLOGY, UNDERSTAND THE IMPLICATIONS OF IT AND MAKE SURE THAT WHAT THEY RECEIVE IS ALL THAT IT CAN BE WITHOUT DISTRACKING, WITHOUT DISTRACTION, WITHOUT LAST OF PRIVACY AS THEY USE IT.

>> MY NAME'S WAYNE POWELL I WORK AT TOYOTA, SPECIFICALLY IN THE, WE HAVE AN RND CENTER IN ANN ARBOR, MICHIGAN.

I'M THE GENERAL MANAGER FOR THE GROUP RESPONSIBLE FOR MULTIMEDIA AND TELEMATIC DEVELOPMENT, PRIMARILY FOR THE NORTH AMERICAN MARKET.

IT'S OBVIOUS THAT WE MAKE CARS. IT'S OUR RESPONSIBILITY TO DELIVER THESE SYSTEMS TO OUR CUSTOMERS BOTH ON THE VEHICLE SIDE AS THE CONNECTIVITY. IT'S OUR RESPONSIBILITY TO DESIGN AND VALIDATE THEM.

>> OKAY, THANK YOU.
AND JUST FOR PURPOSES JUST SO WE

UNDERSTAND AGAIN WE HAVE A SHORT PERIOD OF TIME JUST IN TERMS OF DEFINING THE SCOPE WE'LL LIMIT IT TO CONSUMER-FACED TECHNOLOGY. WE WILL NOT BE TALKING VEHICLE TO VEHICLE INFORMATION TRANSITION OR VEHICLE TO INFRASTRUCTURE TECHNOLOGY.

>> WE HEARD EARLIER THAT A BMW HAS FIVE COMPUTERS IT USES TO UNLOCK THE CAR DOORS.

SO I DON'T OWN A BMW UNFORTUNATELY BUT I'VE BEEN IN A FEW AND I DIDN'T KNOW THERE WERE THAT MANY COMPUTERS AT WORK. THAT GIVES US A GOOD STARTING POINT.

WHAT ARE SOME OF THE TECHNOLOGIES THAT EXIST CURRENTLY IN CARS.

HOW MANY COMPUTERS, WHAT TYPES OF COMPUTERS OR SYSTEMS ARE AVAILABLE IN VEHICLES TODAY.

>> I GUESS I COULD START THAT ONE.

I DON'T HAVE THE NUMBER OFF THE TOP OF MY HEAD BUT AT ONE TIME THE AUTOMOBILE WAS THE SINGLE LARGEST CONSUMER OF CPU's FROM A SINGLE DEVICE POINT OF VIEW. THERE ARE DOZEN AND DOZENS. THE MORE COMPLEX THE CAR, THE MORE WE HAVE.

THE IDEA OF USING MULTIPLE DEVICES DISTRIBUTED ACROSS THE CAR TO DO A FUNCTION IS VERY TYPICAL FOR ISSUES LIKE THAT. SPECIFIC TO THIS PARTICULAR TOPIC OF CONNECTED VEHICLE, MAYBE I CAN CLARIFY SOME THINGS WHAT CONNECTED CAR IS AND WHAT IT'S NOT.

FIRST I'LL START WITH WHAT IT'S NOT.

WHAT TOYOTA'S DONE IN THE CONNECTED CAR SPACE HAS BEEN TO

CONNECT THE USERS IN THE CAR WITH INFORMATION THAT THEY WANT AND THEY NEED.

THAT IS FOR A VERY LONG TIME HAS BEEN SATISFIED THROUGH BROADCAST MEDIA, DOWNLOADING FROM EITHER SATELLITE OR TERRESTRIAL-BASED SYSTEMS.

SO THE MAJORITY OF WHAT PEOPLE ACTUALLY SAY THEY WANT AND ACTUALLY DO CONSUME BASED ON OUR TESTING AND OUR SURVEYING IS CAN BE SERVICE BY BROADCAST MEDIA, MEANING WE CAN SEND TRAFFIC, WEATHER, LOTS OF INFORMATION DOWN TO THE CAR, THE CAR CAN GRAB IT, STORE IT AND THE CONSUMER CAN CONSUME IT WITH NO BI-DIRECTIONALITY OF THE DATA.

FOR MANY YEARS THAT'S BEEN MOST HOW FAR OUR CONNECTED CAR SPACE AND THE DATA SPACE.

SO IN THAT SENSE, THAT IS NOT CONNECTED CAR, IT'S ONE DIRECTION.

ANOTHER AREA I WANT TO CLARIFY THAT'S NOT CONNECTED CAR, I THINK THIS HAS COME UP WITH QUESTIONS THE EVR, THE EVENT DATA RECORDER.

THERE'S SOME FEAR THAT WE HAVE THE ABILITY TO CONNECT THAT TO THE NETWORK.

WE DO NOT.

THAT IS A STAND-ALONE DEVICE IN THE CAR THAT HAS TO BE, THE CAR HAS TO BE ACCESSED DIRECTLY THROUGH WIRED DEVICES TO ACTUALLY GET THAT DATA OUT OF IT.

SO THE EDV IS NOT PART OF OUR LEXICON OF CONNECTED CAR DISCUSSIONS.

HAVING SAID THAT, LET ME TALK ABOUT SOME OF THE THINGS WE DO DO WITH CONNECTED VEHICLE.

THERE'S TWO BASIC PIPES INTO OUR CARS.

ONE IS THROUGH IMBEDDED MODEMS CALLED DATA COMMUNICATION MODULES.

THEY GO BY A VARIETY OF NAMES. PEOPLE LIKE GENERAL MOTORS USING ON STAR AND THESE KINDS OF THINGS.

THAT'S AN IMBEDDED MODEM, A PHONE IMBEDDED TO THE CAR. IT HAS A SECURE CONNECTION TO IN THE CASE OF TOYOTA, OUR SERVER NETWORKS.

IT IS A ONE TO ONE COMMUNICATION, AND THE DATA FLOW IS MANAGED FROM THE VEHICLE TO THE CENTER DIRECTLY THROUGH SECURE LINKS.

AND THAT IS A SUBSCRIPTION BASE SERVICE, AND A CUSTOMER CAN OPT OUT AT ANY TIME.

THE SECOND ONE AND THE MORE RECENT ONE YOU SEE A LOT MORE ABOUT IS SMART PHONE BASE CONNECTIVITY OF CARS.

TOYOTA WE CALL THAT LEXUS IN FORM AND TOYOTA IN TWO CONNECTION SYSTEMS.

THOSE ARE MORE, THE ONES YOU HEAR A LOT MORE ABOUT ARE THE APP TYPE ENVIRONMENT WHERE CONSUMERS CAN DO BINGE SEARCHES, AUDIO STREAM SOURCES.

THEY CAN CONDUCT SOME QUERY MOVIE TICKETS, RESTAURANTS, THINGS LIKE THAT.

THAT'S THE SECOND PIPE INTO THE CAR.

THAT'S LARGELY THROUGH THE CONSUMER'S PHONE. CONNECTED VIA THROUGH BLUETOOTH OR USB INTO THE CAR ITSELF.

I THINK IT'S IMPORTANT TO RECOGNIZE THOSE SYSTEMS ARE BY DESIGN SEGREGATED IN THE VEHICLE

WHERE THEY ARE NOT CONNECTED TO THE ENTIRE VEHICLE DATA BUS AND HAVE ACCESS TO THE ENTIRE CAR'S DATA NETWORK.

SO THOSE ARE THE TWO PRIMARY PATHS THAT WE ADDRESS WHEN WE TALK ABOUT CONNECTED VEHICLES.

>> I'M SORRY, I HATE, I DON'T MEAN TO INTERRUPT.

WHAT YOU JUST DESCRIBED, IS THAT UNIQUE TO TOYOTA'S MODEL OR IS THAT ACROSS THE INDUSTRY?

>> WELL IT'S CERTAINLY CITY TAUGHT'S MODEL.

BY AND LARGE I CAN'T SPEAK FOR EVERYONE BUT THAT'S BASICALLY THE METHODS.

THERE'S SOME SHORT RANGE COMMUNICATION WIRELESS DEVICES. YOU CONSIDER BLUETOOTH I SUPPOSE WIRELESS OR WI-FI BUT THE MAJORITY OF THE LONG HAUL WIRELESS COMMUNICATION BY DIRECTIONAL IN THE CAR IS BY THOSE TWO MEANS, YES.

>> I COULD TELL TADAYOSHI HAD SOMETHING HE WAWNTSD TO HAVE.

>> I DON'T HAVE THE SAME EXPERTISE WAYNE HAS WITH REGARD TO WORKING THE INDUSTRY IN TOYOTA I WOULD SAY IN PART OF OUR LAB WE PURCHASED TWO MODERN AUTOMOBILES AND STUDIED THEM FROM A PRIVACY PERSPECTIVE.

I WON'T GET INTO THE PRIVACY BUT THE MODERN AUTOMOBILE IS BASICALLY COMPUTERIZED.

I'VE TALKED ABOUT MANUFACTURERS THAT HAVE MORE THAN A HUNDRED COMPUTERS INSIDE THEIR VEHICLE AND THEY ARE ALL CONNECTED TO EACH OTHER.

THERE'S A LOT OF CONCERN HAVING SO MUCH CABLING INSIDE THE CAR IS REALLY WEIGHING DOWN THE CAR FROM A PHYSICAL WEIGHT

PERSPECTIVE.

THERE ARE SEVERAL POINTS I WANTED TO MAKE AND FOLLOW UP ON WAYNE'S.

ONE IS IN CASE YOU AREN'T ALREADY IN THE AUTOMOTIVE SPACE, IT IS THAT THE CONNECTION WITHIN AND THE COMPUTERS WITHIN THE CAR ARE INCREDIBLY VALUABLE FROM A SAFETY PERSPECTIVE.

AND TO GIVE YOU AN EXAMPLE OF THE SAFETY VALUE AND ALSO THE CONNECTIVITY WITHIN THE CAR, SOME MODERN AUTOMOBILES HAVE A SENSOR ON EACH WHEEL THAT DETECTS HOW FAST EACH WHEEL IS SPINNING.

IT SENDS IT TO ANOTHER SENSOR TO DETERMINE IF ONE WHEEL IS SPINNING FASTER THAN ANOTHER. IF IT IS IT'S A SIGN YOU'RE GETTING INTO A SKID SENDING A MESSAGE TO THE BRAKE CONTROLLER SAYING PLEASE SLOW DOWN THE LEFT BACK WHEEL, IT WILL APPLY MORE LEFT AND THERE'S TRACTION CONTROL.

HUGE VALUE IN THE COMPUTERS AND CONNECTIVITY WITHIN THE VEHICLE. THE SECOND FOLLOW UP POINT I WOULD MAKE IS THAT I THINK THERE'S LOTS OF, WHEN WE THINK ABOUT CONNECTIVITY THERE'S LOTS OF DIFFERENT DEFINITIONS WE CAN HAVE IN MIND.

I REALLY LIKE WAYNE'S DEFINITION OF CONNECTIVITY FROM THE PERSPECTIVE THIS IS SOME SORT OF CAPABILITY PROVIDING TO THE CONSUMER OR THE PERSON USING THE VEHICLE.

ONE THING I WILL POINT OUT WHEN WE'RE DEALING WITH THESE NEW TECHNOLOGIES IS TRYING TO UNDERSTAND THE UNEXPECTED CONSEQUENCES.

NAMELY THERE'S CONNECTIVITY BY DESIGN AND THERE'S ALSO CONNECTIVITY BY ATTACKER. THIS IS WHERE AN ATTACKER FIGURES OUT SOME WAY TO BRIDGE MULTIPLE NETWORKS OR SOME WAY TO LEVERAGE THE CONNECTIVITY IN UNEXPECTED WAYS SO THAT'S SOMETHING THAT WE IN OUR LAB ALSO TRY TO THINK ABOUT.

>> AND SPECIFICALLY AS TO CONNECTIVITY BY ATTACKER, THAT SPECIFICALLY GOES TO SOME OF THE WORK YOU AND YOUR COLLEAGUES DID.

CAN YOU TALK A LITTLE BIT ABOUT THAT.

>> YES.

THERE'S A NUMBER OF THINGS THAT MY COLLEAGUES AND I DID WITH THE VEHICLES WE PURCHASED.

WHAT WE WANTED TO DO, TO GROUND YOU IN THE CONTEXT, WITHIN THE MODERN AUTOMOBILE THERE ARE DOZENS OF COMPUTERS AND THESE COMPUTERS ARE CONNECTED TO EACH OTHER FOR VALUABLE SAFETY.

THE FIRST SET OF EXPERIMENTS WE TRIED TO FIGURE OUT IS WHAT MIGHT AN ATTACKER BE ABLE TO DO IF THEY COULD CONNECT TO THAT CAR'S INTERNAL COMPUTER NETWORK. THE ATTACKER COULD DO A NUMBER OF THINGS, HE OR SHE COULD CONTROL THE BRAKES, THE VEHICLE LIGHTING.

WE TESTED THIS ON A DECOMMISSIONED AIRPORT RUNWAY FOR SAFETY WHERE WE HAD A TEST PERSON DRIVING THE VEHICLE AND WE SENT AN ADVERSARIAL CRAFTED PACKET MAKING ITEN POSSIBLE FOR THE DRIVER TO STOP THE CAR.

WE DID ANOTHER NUMBER OF TESTS AS WELL.

THE SECOND SET WAS HOW MIGHT THE

ATTACKER GAIN ACCESS TO THE
CAR'S COMPUTER INTERNAL NETWORK
WITHOUT EVER TOUCHING THE CAR.
WE ACTUALLY FOUND SEVERAL WAYS
TO DO THIS.

ONE OF THE CUTE WAYS WE DID IT,
I COULD E-MAIL YOU A WMA FILE
THAT WOULD PLAY PERFECTLY FINE
ON YOUR COMPUTER BUT IF YOU BURN
IT TO A CD AND PUT IT INTO YOUR
CAR, IT UNLOCKS THE CAR DOORS.
WE COULD DO A WHOLE BUNCH OF
OTHER THINGS AS WELL.

BUT PERHAPS EVEN MORE
INTERESTING IS THAT OUR CAR HAD
A BUILT IN TELEMATTICS UNIT.
WAYNE ALREADY MENTIONED THE DCM.
WHAT THIS MEANS IS WE BUY THE
CAR OFF THE LEFT.

IT HAS A BUILT-IN CELL PHONE IN
THE VEHICLE.

WE DIDN'T HAVE TO DO ANYTHING OR
ACT VAC OUR SERVICE.

WE COULD CALL THIS CAR'S PHONE
NUMBER, PLAY THE APPROPRIATE
BYPASS AND AWE THEM CASE
VULNERABILITY ON THE VEHICLE AND
LOAD OUR OWN SOFTWARE INTO THE
CAR.

WE WERE ABLE TO DO THAT.
BECAUSE THE CAR HAD A BUILT IN
CELL PHONE IT HAD THREE G DATA.
ONCE THEY HAD THIS SMALL BIT OF
CODE IN THE CAR IT OPENED UP
CONNECTIONS TO OUR SERVERS AT
THE UNIVERSITY OF WASHINGTON AND
DOWNLOADED OTHER CODES.

IT'S AN IRC CLIMATE SO WE WE
BASICALLY PUT THE CARS IN OUR
COMMAND CONTROL SYSTEM AT UDUB.
AT THAT POINT WE COULD DO
ANYTHING WITH THE VEHICLE.
WE COULD START THE ENGINE,
DISINGAGE THE BREAKS.

WE COULD BY PASS THE MOBILIZER
SO THE THING DESIGNED TO PREVENT

THEFT.

IT HAS BLUETOOTH WHICH MEANS IN CABIN MICROPHONES SO WE COULD TURN THE MICROPHONES ON IN THE CAR AND LISTEN TO EVERYTHING GOING ON INSIDE THE CAR WITHOUT VISUAL INDICATORS.

THAT'S KIND OF MAYBE A LITTLE LONGER SUMMARY BUT IT'S A SUMMARY.

>> THAT'S QUITE ENOUGH, THANK YOU.

[LAUGHTER]

>> SO GIVEN THE DEPTH OF THOSE RISKS IT BEGS THE QUESTION ASIDE FROM SOME SAFETY BENEFITS WHAT ARE THE ACTUAL OTHER ADDITIONAL BENEFITS OF HAVING CONNECTED CARS.

>> SO MAYBE I CAN TALK ABOUT THAT AND I WOULD BE INTERESTED TO HEAR FROM TADAYOSHI WHETHER THERE ARE EXPERIENCES IN THE WILD, EXAMPLES OF THIS IN THE REAL WORLD.

I DO THINK IT'S IMPORTANT AS ONE OF YOUR PREVIOUS PANELISTS TALKED ABOUT YOU NEED TO KNOW THE NUMERATOR AS WELL AS THE DENOMINATOR.

THE BENEFITS OF CONNECTED CARS ARE REALLY QUITE SIGNIFICANT FOR PEOPLE WHO HAVE IT.

YOU MAY HAVE EXPERIENCED IT. FOR EXAMPLE IF A DRIVER IS IN AN EMERGENCY SITUATION THEY CAN LITERALLY JUST PUSH A BUTTON AND CALL ON FIRST RESPONDERS.

OR EVEN IF THEY'RE NOT ABLE TO THEMSELVES, FIRST RESPONDERS CAN BE CALLED BY THE CAR.

THESE SYSTEMS CAN AWE LOT DRIVERS TO HAZARDOUS ROAD CONDITIONS AND NAVIGATE THE DRIVERS AROUND THEM.

THEY'RE ON BOARD SENSORS AND AN

LIFTICS THAT CAN WORK TOGETHER TO DETECT DANGEROUS MALFUNCTIONS AND ALERT DRIVERS OF THE DANGERS.

IT CAN BE USED FOR PARENTS TO ENSURE THEIR KIDS ARE USING THE CAR RESPONSIBLY.

I HAVE AN APP FOR MY CAR THAT SHOWS THE MAP AND WILL ACTUALLY SHOW WHERE THE CAR IS DRIVING AND HOW FAST.

I'LL KNOW THAT IT'S A FAMILY MEMBER I'VE LOANED THE CAR TO AND I CAN SEE HOW THEY'RE DRIVING.

I HAVE A CAR THAT HAS AN UPDATED WIRELESSLY WITH MY PERMISSION. THEY NOTIFY ME EVERY TIME IT HAPPENS.

AND ONE OF THE CONDITIONS IN THE CAR CURRENTLY IS THAT IT HAS SUCH A LOW CLEARANCE THAT APPARENTLY IT'S BEEN STRIKING OBJECTS IN THE ROAD AND CAUSING FIRES.

AND SO TODAY THE MANUFACTURER ANNOUNCED THAT THEY WERE GOING TO SEND AN UPDATE TO RAISE THE SUSPENSION.

I DON'T GO INTO THE SHOP TO HAVE THAT DONE, THE CAR WILL DO IT FOR ME.

IN TERMS OF PUBLIC SAFETY CONNECTED CAR COMPANIES MAYBE ABLE TO SLOW DOWN CAR VEHICLES TO HELP REDUCE THE NUMBER OF HIGH SPEED PURSUITS.

WE ACTUALLY SEEN VIDEOS ABOUT THIS ON SOME OF THE TV CRIME SHOWS WHERE THERE'S A CARJACKING OR SOME OTHER INCIDENT GOING ON FROM A REMOTE LOCATION, THE CAR CAN BE SLOWED DOWN, THE FOUR WAY FLASHERS PUT ON AND THE CAR CAN BE STOPPED.

STOLEN CARS CAN BE RECOVERED

MORE EASILY WITH THIS TECHNOLOGY.

AND LOCATION SERVICES CAN HELP ENSURE GOOD SAMARITAN CALLS RESULT IN FIRST RESPONDERS BEING DIRECTED EXACTLY TO THE SCENE. THERE'S SIMPLE CONVENIENCE FACTORS.

MY CAR IF IT'S 115 DEGREES IN THE INTERIOR WHICH SOMETIMES HERE IN WASHINGTON IT IS IN THE SUMMER.

I CAN TURN THE AIR CONDITIONING ON FROM MY APP AND MAKE THE CAR COOLER INSIDE.

THE NAV SYSTEM IS CONNECTED FROM SOME INTERESTING WAYS WE HEARD FROM VINCE, MAYBE HELP ME AVOID TRAFFIC JAMS OR SPEED CAMERAS.

>> NOT THAT YOU EVER SPEED.

>> NO, NOT THAT I EVER SPEED.

FIND PARKING AND OTHER THINGS.

AND SO COMING ALONG WILL BE THINGS LIKE OFFERS FROM MECHANICS RESTAURANTS, RETAILERS, ENTERTAINMENT VENUES AND MORE THAT I MIGHT WANT TO HAVE PROVIDED TO ME THROUGH THE APPS IN THE CAR.

INFOTAINMENT SYSTEMS CAN ALLOW ME AT APPROPRIATE TIMES AND PLACES ACCESS SOCIAL MEDIA OR HAVE THE PASSENGERS ACCESS THEM. WE HEARD ABOUT APPS TODAY THAT CAN MAKE SURE YOUR GARAGE DOOR IS SHUT.

IT CAN ALSO OPEN YOUR GARAGE DOOR.

I'VE USED MY APP MORE THAN A FEW TIMES TO REMEMBER WHERE I PARKED IT AND IT PROVIDES MAP AND PROVIDES DIRECTIONS BACK TO THE CAR.

AND I MENTION THAT THE SOFTWARE NOT ONLY ON THE SUSPENSION ISSUE BUT THE SOFTWARE CAN BE UPDATED

TO PROVIDE ADDITIONAL FEATURES'
AND ALSO SAFETY ENHANCEMENTS
WITHOUT HAVING TO TAKE THE CAR
TO THE REPAIR SHOP.

>> MAYBE JUST BUILDING ON THAT A
LITTLE BIT IN ADDITION TO WHAT
IT CAN DO TODAY, WHEN YOU THINK
OF THE CAR HAVING COMPUTERS ON
ALMOST EVERY SYSTEM THAT EXISTS,
EITHER FROM A STAND POINT OF
MONITORING WHAT IT'S DOING OR
CAUSING IT TO ACTUATE AND DO
SOMETHING ELSE.

IT ALSO PROVIDES THE ABILITY TO
IDENTIFY THINGS THAT COULD BE
FAILING, THAT COULD BE GOING
WRONG.

AND SO IF YOU PLAY THIS OUT IN
SOME OF THE NEWER SYSTEMS ARE
NOW ACTUALLY CAPTURING DATA AND
SAYING WAIT A MINUTE, THIS
SYSTEM IS A LITTLE BIT OUT OF
SPEC TIME TO COME IN FOR A
SERVICE.

SO POTENTIAL WITH ALL OF THIS
TECHNOLOGY IS TO SIMPLIFY OUR
LIVES.

I MEAN IT SOUNDS
COUNTERINTUITIVE TO TALK ABOUT
ALL THIS COMPLEX STUFF.
BUT APPLIED PROPERLY, IT REALLY
DOES SIMPLIFY LIFE FOR
MOTORISTS, PROVIDES NEW INSIGHT
THAT CAN KEEP THEM SAFER, HELP
SAVE SOME MONEY, GIVE THEM
INSIGHT THEY WOULDN'T OTHERWISE,
THEY WOULDN'T HAVE.

SO THERE'S A LOT OF PLUSES TO
IT.

I WOULD JUST SAY THE OTHER SIDE
OF THE TECHNOLOGY IS OBVIOUSLY
WE THINK OF DISTRACTION IN
LOOKING DOWN AT SOMETHING
MANUALLY MOVING A KNOB.
BUT COGNITIVE DISTRACTION.
SO MANY THINGS START GOING ON,

YOU START WORK OVERLOAD IS A REAL ISSUE.

TRIPLE A FOUNDATION FOR TRAFFIC SAFETY HAS DONE SOME RESEARCH THAT SHOWS THERE ARE SOME LIMITS.

AS WE GET MORE AND MORE AND MORE INTO THE CAR, THE OPPORTUNITY FOR DISTRACTION, IF THE DATA DOESN'T DISPLAYED PROPERLY AND CONTROLLED IN A GOOD WAY IS A SERIOUSLY GROUND RISK.

>> JOHN'S POINT IS REALLY CRITICAL BECAUSE IF WE TALK ABOUT THE PROS AND CONS HAVING THESE TECHNOLOGIES.

DRIVERS WILL HAVE THEM.

THEY WILL PROBABLY HAVE THEM ON THEIR MOBILE ADVICE.

IT'S AN ISSUE LOOKING DOWN ON THEIR iPHONE ON THE LAP.

HOW MANY TIMES DRIVERS ARE DRIVING VERY VERY SLOWLY AND THEY'RE OBVIOUSLY INTERACTING WITH AN APP AND YOU HONK AT THEM AND THEY SPEED UP VERY VERY FAST.

THEY'RE GOING TO DO THAT WHETHER OR NOT IT'S PROVIDED BY THE OAM OR IT'S IN THE CAR SO WHY NOT PROVIDE IT IN A WAY THAT IS PRESENTED SO THAT THEIR HEAD IS UP AND PERHAPS HAS ACCESS CONTROLS ON WHAT'S AVAILABLE WHEN THE CAR IS MOVING OR NOT AND IS PRESENTED IN A WAY THAT BOTH USER FRIENDLY AND SAFE. AND I KNOW THAT'S BEYOND THE JURISDICTION OF THE FTC.

IT'S MORE A -- RELEVANT BUT IT'S MORE RELEVANT TO FLESH OUT THIS DISCUSSION.

>> IT'S STILL REALLY INTERESTING AND IT BEGS THE QUESTION OF WHEN IS THERE TOO MUCH TECHNOLOGY. SO WE'VE HEARD EARLIER ABOUT THE

DIFFERENT THINGS THAT YOU CAN DO WITH FITNESS DEVICES.

SO IF YOU TAKE THOSE DEVICES THAT WE'VE HEARD ABOUT PREVIOUSLY AND INTEGRATE THOSE INTO VEHICLES, HOW MUCH DISTRACTION DOES THAT CREATE AND HOW DO WE START TO ASSESS WHEN THERE'S TOO MUCH TECHNOLOGY.

ONE THING WE CAN BE SURE OF IS IF IT'S POSSIBLE TO BUILD IT, THERE ARE INNOVATIVE PEOPLE TRYING TO BUILD IT.

HOW DO WE DETERMINE WHERE THE LINE IS IN TERMS OF TECHNOLOGY WE SHOULD ACTUALLY CONSIDER INTEGRATING INTO VEHICLES.

>> BUILDING ON THE PREVIOUS POINT, I THINK THE TECHNOLOGY ITSELF IS A BENEFIT AND INFORMATION OR DATA THERE'S NOT A DOWN SIDE TO THAT.

I THINK THAT'S SOMETHING PRODUCED BY THE CAR.

THE MORE THE HORNE CAN ACCESS AND USE THAT, THERE'S JUST NOTHING BUT UPSIDE.

IT'S NOT HOW MUCH THEY HAVE OR IF THEY HAVE TOO MUCH OR TOO LITTLE.

HOW DO YOU PUT IT TO USE.

IS THAT SOMETHING YOU WANT WHILE DRIVING DOWN THE ROAD OR SOMETHING YOU WANT TO ACCESS AT HOME OR SOMEWHERE ELSE.

>> THESE SERVICES ARE BEING PROVIDED AND THEY SOUND GREAT BUT IN TERMS OF THE OTHER SIDE, AND I KNOW WAYNE YOU TALKED A LITTLE BIT, THE MODEL I THINK YOU WERE TALKING ABOUT IS A LITTLE DIFFERENT BECAUSE IT'S SORT OF SELF CONTAINED BUT IN TERMS OF DATA THAT IS BEING COLLECTED BY ALL THIS TECHNOLOGY IN THE CAR, YOU KNOW, THE

QUESTION ARISES WELL WHAT IS HAPPENING WITH ALL THAT DATA, WHERE IS IT BEING STORED, HOW IS IT BEING USED, WHO HAS ACCESS TO IT.

DOES THIRD PARTY HAVE ACCESS TO IT.

CAN YOU TALK TO THOSE ISSUES.

>> MAYBE I CAN START BECAUSE THE CHAIRWOMAN THIS MORNING USED THIS EXAMPLE.

SHE SAID CONNECTED CARS MAY DIRECT EMERGENCY RESPONDERS TO AN ACCIDENT BUT WILL THE DATA TRANSMITTED BE SHARED WITH YOUR INSURER WHO MAY RAISE YOUR RATES OR CANCEL YOUR POLICY.

AND I ACTUALLY TWEETED THAT THIS WAS A HYPOTHETICAL THAT SOUNDS SCARY BUT THERE'S NO FACTUAL PREDICATE FOR IT.

IN FACT THE CLOSEST THING WE KNOW THERE ARE INSURANCES COMPANIES THAT PROVIDE YOU THE OPPORTUNITY TO HAVE MONITORS IN YOUR CAR TO EVALUATE YOUR SPEED AND LOCATION TO EFFECT YOUR RATES AND ALSO MAYBE MAKE CONCLUSIONS ABOUT YOUR SAFE DRIVING TO ALSO AFFECT YOUR RATES OR YOUR COVERAGE.

BUT BELIEVE ME, THOUGH ARE DONE WITH ABSOLUTE DISCLOSURE AND PURELY A CHOICE ON THE PART OF THE INSURED MOTORIST.

I DON'T THINK WE'VE SEEN ANYTHING CLOSE TO THE HYPOTHETICAL THAT THE CHAIRWOMAN RAISED.

WITH RESPECT TO THE OEM'S I THINK WE'VE SEEN PRETTY GOOD DISCLOSURE ABOUT THE USE AND ACCESS AND DATA TO THE EXTENT THERE HASN'T BEEN GRANULAR DISCLOSURE I THINK CONTEXT SAYS A LOT.

I THINK A LOT OF MOTORISTS WOULD UNDERSTAND THAT WHEN THEY PUSH THE BUTTON TO HAVE AN EMERGENCY RESPONDER COME RESCUE THEM, THEIR DATA IS BEING CHAIRED WITH EMERGENCY RESPONDER.

>> WHAT ABOUT IN TERMS OF SAY, AND WAYNE YOU TALKED A LITTLE BIT ABOUT THIS I BELIEVE.

VEHICLES THAT SAY YOU CAN TAKE YOUR SMART PHONE, YOU CAN PLUG IT INTO YOUR CAR, RUN WHATEVER APPS YOU WANT TO RUN.

SO THE OEM'S MAY HAVE A PARTICULAR POLICY RECORDING THE VEHICLE ITSELF.

BUT ONCE YOU START INTRODUCING SAY THESE THIRD PARTY APPS OR YOU KNOW OR ARE YOUR SMART PHONE OR WHATEVER, AT THAT POINT, WHO BECOMES RESPONSIBLE OR IS THERE ANYBODY RESPONSIBLE FOR WHAT DATA IS COLLECTED AND HOW THAT DATA IS USED?

>> AS FAR AS THE DATA ITSELF, WE HAVE A BASIC, THE TECHNOLOGY'S AVAILABLE TO DO ALMOST ANYTHING AS HAS BEEN DESCRIBED BOTH UP AND DOWN HERE.

AT TOYOTA, FIRST THING IS WHAT DO WE NEED.

WHAT IS THE NECESSARY FUNCTIONS THAT MEET THE LITMUS TEST OF WHAT'S NECESSARY IN THE CAR.

THESE GENTLEMEN ALREADY DESCRIBED SAFETY FUNCTIONALITY REGARDING DEPLOYMENT. THE NEED.

WHAT IS THE VALUE PROPOSITION OF THE CAR TO THE CUSTOMER AND DRIVER AWARENESS.

THINGS LIKE TRAFFIC AND WEATHER AND INCIDENCE ON THE ROAD MAKES DRIVERS NOT JUST DISTRACTED BUT MORE AWARE AND BETTER DRIVERS AND MORE CAPABLE OF DEALING WITH

COMPLICATED TRAFFIC STRUCTURES
AND THINGS LIKE THAT.
WE ALSO HAVE ANOTHER LITMUS TEST
THAT SAYS DRIVER DISTRACTION
WHICH WAS TALKED ABOUT AS WELL.
DRIVER DISTRACTION IS AN
ENORMOUS ISSUE.
TOYOTA HAS POLICIES IN PLACE,
INTERNAL SELF-IMPOSED POLICIES
IN PLACE THAT WE RESTRICT ACCESS
TO THINGS WHEN VEHICLES ARE IN
MOTION.
TOYOTA'S BEEN WORKING OTHERS,
WITH OTHER CAR CONSORTIUMS
THAT.
WE'VE TAKEN A BEATING OVER THE
MARKETPLACE.
THERE ARE CUSTOMERS WHO
CONSISTENTLY COMPLAIN ABOUT THE
FACT WHY CAN'T MY PASSENGER DO
THIS WHILE I'M DRIVING.
GOOD QUESTIONS BUT THE TOYOTA'S
POLICY IS CONSERVATIVE THERE.
WE LOCK THINGS UP, WE DON'T
ALLOW CERTAIN THINGS TO HAPPEN
BECAUSE WE DON'T THINK IT'S
APPROPRIATE TO DO IN THE CAR.
SO LAYER ONE IS WE LIMIT THE
FUNCTIONALITY TO WHAT'S
APPROPRIATE.
TO THE ISSUE OF SECURITY, THIS
IS THE ESSENCE OF THE ISSUE.
TOYOTA TAKES A LAYERED APPROACH
OF LIMITING WHAT WE ACTUALLY
HAVE AVAILABLE IN THE CAR.
SECURITY BY DESIGN.
YOSHI DESCRIBED LARGE NUMBER OF
MICRO PROCESSORS THAT ARE
CONNECTED.
GENERALLY THAT'S BASICALLY TRUE
BUT THAT IS NOT PERFECTLY TRUE
IN EACH CASE.
ALL NETWORKS, ALL CPU'S IN THE
CARS ARE NOT CONNECTED TO ALL
NETWORKS.
THERE'S SOME LEVEL OF

SEGREGATION IN THE VEHICLE AND
WE ENGINEER THOSE THINGS IN.
WE ALSO HAVE A SECOND ROUND
WHERE WE, THE PIPES THAT GO OUT
OF THE CAR ARE NOT JUST WIDE
OPEN PIPES THAT CAN CALL ON.
BOTH OUR DCM OR BUILT-IN
MODEM-BASED SYSTEM AS WELL AS
OUR SMART PHONE BASED SYSTEMS
HAVE DEDICATED LINKS BY DESIGN
TO SECURED DATA CENTERS.
AND THIRD PARTY IF YOU WERE
ACCESSING THE CARS THROUGH THOSE
CENTERS NOT DIRECTLY AT THE CAR.
THE THIRD AREA THAT WE USE TO
IMPROVE SECURITY IS EVALUATION
ITSELF.
WE TEST OUR CARS.
WE ACTUALLY GO AFTER THIS STUFF.
WE LOOK FOR HOLES IN OUR
SYSTEMS.
AND THE FOURTH WAY IS WE ENGAGE
THIRD PARTIES OUTSIDE TO DO THE
SAME THINGS.
PEOPLE SUCH AS YOSHI.
THESE KINDS OF DEEP KNOWLEDGE
HOW SYSTEMS AND HACKERS CAN GET
IN THESE CARS.
WE EMBRACE THAT AND WE HIRE THEM
AND WORK WITH THEM.
WE TAKE THEIR INPUT AND MAKE OUR
SYSTEMS BETTER.
HAVING SAID ALL OF THOSE THINGS
AND PUTTING ALL OF LAYERS IT'S
STILL NOT A PERFECT WORLD.
THERE'S NO SUCH THING AS A
PERFECTLY EXPEURD DEVICE THAT'S
CONNECTED AND I DON'T THINK
THERE EVER WILL BE.
THE NUMBER OF LAYERS AND EFFORT
WE PUT IN PLACE IN THE CONTINUUM
THAT WE ARE DOING TO CONTINUE TO
WATCH FOR NEW THREATS, NEW
POINTS OF ATTACK IS UNENDING.
>> CAN I JUST ADD HAVING WORKED
WITH MY LAW PRACTICE WORKING

WITH OEM, THEY UNDERSTAND THE SECOND THEY LOSE CONSUMER TRUST BECAUSE OF UNDUE CONCERN OVER SECURITY OR SHARING PRIVACY ISSUES THAT THIS TECHNOLOGY WILL NOT REALIZE ITS POTENTIAL.

IT HAS HUGE POTENTIAL.

IN NEW MODEL YEARS, WE'LL SEE UNBELIEVABLE EVOLUTION IN THIS TECHNOLOGY.

SO BASED ON MY EXPERIENCE, THESE COMPANIES ARE TAKING THESE ISSUES EXTREMELY SERIOUSLY AND ARE GIVING THEM THE SECURITY AND PRIVACY ISSUES THE HIGHEST LEVEL OF ATTENTION.

>> THIS QUESTION IS DIRECTED I GUESS MOSTLY TO CHRIS AND JOHN BUT ANYBODY ELSE FEEL FREE TO CHIME IN.

AND IT'S ABOUT CONSUMER ATTITUDES ABOUT PRIVACY.

SO IN TERMS OF YOUR INTERACTIONS OR RESEARCH WITH CONSUMERS, WHAT THINGS THIS HAVE THEY BEEN SORT OF SQUEAMISH ABOUT IN TERMS OF TECHNOLOGY AND ACCESS TO THEIR INFORMATION AND AMOUNT OF SHARING THAT'S POSSIBLE IN VEHICLES AND JUST THEIR ATTITUDE ABOUT THAT.

>> WE HAVE A COUPLE STUDIES WE LOOKED AT THE FUTURE PRIVACY FORUM.

THERE WAS A RECENT STUDY THAT FOUND THAT CONSUMERS ARE EAGER TO SEE THESE MAPS AND PARKING AND TRAFFIC AND OTHER TRANSFER INFORMATION BROUGHT INTO THEIR VEHICLES.

THEY SEE THE VALUE IN BEING ABLE TO UPDATE SOFTWARE MORE REMOTELY, TO MONITOR THEIR KIDS DRIVING HABITS AND TRANSFER PERSONAL SETTINGS FROM ONE CAR TO ANOTHER WHICH IS SOMETHING WE

HAVEN'T TALKED ABOUT YET.
IN 2011 THE INITIATE DEPARTMENT
OF TRANSPORTATION AND CENTER FOR
AUTOMOBILE RESEARCH IDENTIFIED
SECURITY IS THE PRIMARY CONCERN
FOR CONNECTED CAR TECHNOLOGIES
WHICH GOES TO MY POINT WHY ARE
THESE CAR COMPANIES TAKING IT SO
SERIOUSLY.

THAT WAS FOLLOWED BY DRIVER
DISTRACTION, DRIVER COMPLACENCY
COST AND DRIVE SEE SORT OF
BROUGHT UP THE REAR WHICH WAS
KIND OF AN INTERESTING FINDING.
AND A RECENT STUDY BY CAB GEMINI
SHOWED THAT OVER 75% WERE
WILLING TO SHARE THEIR DATA.
20 WOULD SHARE WITH NO
RESTRICTIONS, 27 WOULD SHARE FOR
INSENTIVES AND 20ERS PERCENT
WOULD SHARE ANONYMOUS DATA FOR
RESEARCH.

THERE'S A LOT OF THIS DATA BEING
COLLECTED THAT'S BEING
ANONYMIZED AND COMBINED WITH
OTHER DATA TO DO TRAFFIC AND
OTHER PUBLIC POLICY KIND OF
RESEARCH.

>> MAYBE TO COME BACK DOWN TO
SOME OBVIOUS THINGS, CONSUMERS
OBVIOUSLY ARE EXCITED ABOUT THE
TECHNOLOGY, AND THAT'S, AS WE
HEARD, THAT'S SOMETHING THEY
WANT IN CARS.

THEY WANT MORE OF IT.

I THINK IT'S NEW, I'M NOT SURE
THAT THEY FULLY UNDERSTAND IT,
AND THIS IS ANECDOTAL.

THAT THEY FULLY UNDERSTAND WHAT
THE CAPABILITIES ARE, WHAT DATA
IS TRANSMITTED OR GATHERED, AND
ARE THERE ANY RISKS TO PRIVACY,
IT'S UNCLEAR.

BUT I THINK CERTAINLY THEY'RE
INTERESTED, THEY LIKE THIS, IT
IS I THINK THE AUTO INDUSTRY AS

A WHOLE WOULD SAY THAT CONNECTED CAR IS THE FUTURE.

IT'S THE WAY THINGS ARE GOING, AND I THINK THERE'S A STRONG CONCERN FOR SAFETY, FOR SECURITY FOR PRIVACY.

BUT I WOULD JUST SAY THAT THERE ARE A NUMBER OF DIFFERENT CAR COMPANIES, AND EACH HAVE DIFFERENT PRACTICES, DIFFERENT POLICIES.

I THINK EVERYBODY'S CONCERNED ABOUT PRIVACY, BUT THE WAY THE DATA IS COLLECTED, WHAT'S DONE WITH IT IS DIVERSE, AND I DON'T PRETEND TO KNOW EVERY CAR COMPANY.

WHAT I KNOW IS AS WE LOOK AT TERMS OF SERVICE FROM A NUMBER OF THEM, THEY VARY SUBSTANTIALLY.

THIS IS ANECDOTAL.

CONSUMERS NEED TO BE MORE AWARE AND ONE THING TRIPLE A WILL WORK ON IN THE FUTURE YOU'LL SEE RESEARCH THAT REALLY THANKS ABOUT WHAT ARE THEY, WHAT DO CONSUMERS THINK, WHAT DO THEY WANT, WHAT ARE THEIR CONCERNS RELATED TO THIS TECHNOLOGY.

>> YOSHI, IN YOUR WORK I KNOW YOUR FOCUS HAS GENERALLY BEEN THE SECURITY ANGLE OF IT.

WHAT MADE YOU DECIDE TO LOOK AT THESE KINDS OF THINGS.

WHY DID YOU DECIDE TO CHALLENGE THE SECURITIES SYSTEMS OF VEHICLES?

>> YES.

SO THE QUESTION I GUESS EVERYONE HEARD, WHY DID WE DECIDE TO ANALYZE SECURITY SYSTEMS.

ONE THING MY LAB HAS BEEN DOING FOR A VERY LONG TIME IS FIGURING OUT WHAT IS THE NEXT HOT NEW TECHNOLOGY OVER THE NEXT FIVE TO

15 YEARS AND WHAT MIGHT PRIVACY AND SECURITY CHALLENGES MIGHT BE WITH THOSE TECHNOLOGIES.

A BUNCH OF COLLEAGUES GOT A -- AND STARTED TO SAY WHAT ARE THE VULNERABILITIES WITH THIS IMPLANTABLE -- THAT'S WHY WE'RE LOOKING AT HOME MODIFICATION SYSTEMS.

FOR THE SAME REASON WE STARTED LOOKING AT THE MODERN AUTOMOBILE BECAUSE WE SAW THIS AS BEING A VERY EMERGING TECHNOLOGY AND WANTED TO UNDERSTAND WHAT THE ISSUES MIGHT BE.

OVER THE COURSE OF ALL OUR RESEARCH IN THESE AREAS ONE OF THE THINGS WE HAVE OBSERVED IS VERY OFTEN AND I'M NOT SAYING THIS IS ALL THE TIME BUT VERY OFTEN WHAT WE SEE IS SECTORS OF THE BROADER INDUSTRY THAT ARE NOT COMPUTER SCIENCE EXPERTS START TO INTEGRATE COMPUTERS INTO THEIR SYSTEMS AND THEN START TO INTEGRATE NETWORKS INTO THOSE SYSTEMS.

BECAUSE THEY DON'T HAVE EXPERIENCE BEING ATTACKED BY REAL ATTACKERS LIKE MICROSOFT AND SO ON, THEIR KIND OF LEVEL OF SECURITY AWARE THIS IS, OFTEN AGAIN NOT ALWAYS BUT OFTEN APPEARS TO BE KIND OF DATED.

SO FOR IS SYSTEM WE ANALYZED FOR THIS AUTOMOBILE, THE SYSTEM FELT A NUMBER OF VULNERABILITIES THAT KIND OF STRAIGHT OUT FROM THE LATE 1990'S THAT MICROSOFT AND OTHERS WERE HAVING TO ADDRESS.

>> I THINK, AND THAT I THINK GOES ALONG WITH WHAT SOME OF THE OTHER PANELISTS HAVE BEEN SAYING THAT THERE'S THERE CONSUMER DEMAND FOR CONNECTIVITY BUT AT THE SAME TIME IS THERE THE

TECHNOLOGICAL UNDERSTANDING AND SOPHISTICATION OF THE PEOPLE IMPLEMENTING THIS CONNECTIVITY AND IS THIS SOMETHING THAT IS A PROBLEM.

>> SO WHAT I WOULD ACTUALLY SAY IS THAT I FEEL THAT MUCH OF OUR WORK HAS ALREADY BEEN DONE IN THE AUTOMOTIVE SPACE IN THE SENSE THAT WE NOW SEE AUTOMOTIVE MANUFACTURERS REALLY VERY FOCUS ON COMPUTER SECURITY AND PRIVACY ISSUES.

THE U.S. SOCIETY OF AUTOMOTIVE ENGINEERS THEY HAVE A TASK FORCE ON SECURITY FOR AUTOMOBILES.

U.S. CAR ALSO HAS A GROUP FOCUSED ONABLES TO.

I THINK THERE'S A LOT OF AWARENESS BOTH IN THE GOVERNMENT AND INDUSTRY ON SECURITY AND PRIVACY PRODUCED TECHNOLOGIES.

WHAT I WOULD SAY THAT ACTUALLY WORRIES ME MORE IS WHAT IS GOING TO BE THE NEXT TECHNOLOGY IN FIVE YEARS FROM NOW THAT WE AREN'T DISCUSSING, BUT SOME LABORATORY SOMEWHERE THERE'S A LOT OF INNOVATION HAPPENING AND THAT PROJECT EMERGES TO THE MARKET IN FIVE YEARS WILL THEY HAVE THOUGHT ABOUT SECURITY AND PRIVACY PROACTIVITY.

>> I GIVE YOSHI A LOT OF CREDIT BECAUSE HE AND HIS COLLEAGUES HAVE MADE THIS AN ISSUE AS HE INDICATED WAS A WAKE-UP CALL. IF THESE ONE TAKE AWAY FROM THIS PANEL THE CONSUMERS HAVE IS THESE COMPANIES ARE TAKING THE ISSUE SERIOUSLY.

IF THERE ARE SUBSTANTIAL FLAWS OR VULNERABILITIES IN THE CARS PEOPLE ARE DRIVING WE WOULD HEAR ABOUT IT.

>> THE QUESTION IS WHAT CAN,

SHOULD YOU DO IF YOUR VEHICLE IS HACKED WHILE YOU'RE DRIVING.

>> I THINK THAT'S A VERY VERY TOUGH QUESTION AND IT RAISES, I BELIEVE IT ACTUALLY CONNECTS TO A QUESTION CHRIS ASKED EARLIER. WE HAVEN'T SEEN ANYTHING LIKE THIS IN THE WILD YET.

AND I ACTUALLY THINK THAT THE RISK TO CAR OWNERS TODAY IS INCREDIBLY SMALL FOR A NUMBER OF REASONS.

ONE IS THAT TO PULL OFF A FULL SET OF ATTACKS THAT WE DID, REQUIRED A SIGNIFICANT AMOUNT OF TECHNICAL SOPHISTICATION.

AND SECOND, ALL THE AUTOMOTIVE MANUFACTURERS THAT I KNOW OF ARE PROACTIVELY TRYING TO ADDRESS THESE THINGS.

I DON'T WANT TO SPECULATE WHAT TO DO IF THE SITUATION WOULD ARISE IN PRACTICE BUT I WOULD SAY THAT I FEEL LIKE THE RISKS TODAY BECAUSE PEOPLE ARE ADDRESSING IT ARE SMALL BUT THAT SAID, I DON'T WANT AND I DON'T THINK ANYONE PLANS TO BECOME COMPLACENT AND IT'S VERY NICE TO IS HE THAT WE'RE HAVING THIS DISCUSSION HERE TODAY AND THAT ALL THE INDUSTRIAL MANUFACTURERS REPRESENTATIVES AND SO ON ARE LOOKING AT THE ISSUE.

>> I THINK YOU MADE A REALLY GOOD POINT EARLIER ABOUT CONSIDERATION OF FUTURE ISSUES. IT WOULD BE INTERESTING TO HEAR WHAT THE INDUSTRY HAS TODAY CURRENTLY THEY ARE THINKING AND PROACTIVE ABOUT UNIDENTIFIED POTENTIAL ISSUES.

>> TO SET THE STAGE FOR THAT DISCUSSION AND THEN I WANT TO TURN TO THE EXPERTS WHO ARE DOING THIS WORK.

I WROTE A BLOG INDUSTRY FOR THE IPP PRIVACY PERSPECTIVES EARLIER THIS WEEK AS A PREVIEW OF THIS WORKSHOP AND I SAID DO WE NEED THE LAW OF THE CONNECTED FORCE. FOR THOSE WHO REMEMBER JUDGE EASTERBROOK AND LARRY LESSEE HAD THIS DEBATE WHETHER OR NOT WE NEEDED THE LAW OF THE FORCE TO GOVERN THE INTERNET.

DEBATE WAS WHETHER EXISTING LAW WAS SUFFICIENT OR WHETHER WE NEEDED TO EVOLVE SOME NEW RULES. I COME OUT IN TAKING A REALLY MODERATE APPROACH AND SEEING WHEN THERE ARE PROBLEMS INSTEAD OF TRYING TO LEGISLATE IN ADVANCE.

>> YOU ASK WHAT'S THE NEXT FRONTIER.

ONE OF THE FRONTIERS WE SEE IS NOT JUST OUR ELECTRONICS IN THE CAR BUT A LOT OF BROUGHT-IN DEVICES.

THE SMART FUNNY IS A BROUGHT-IN DEVICE IT HAS A LOT OF CAPABILITIES BEYOU'RE SEEING THINGS DIFFERENT FROM THAT. THE INSURANCE CONNECTOR THEY HAVE THEIR OWN MODALS BUILT RIGHT INTO THEM.

THERE ARE A LOT OF DEVICES COMING TO THE CAR.

WE ALSO HAVE NON-OEM COMPETITORS, NEW ENTRANTS TO THE SPACE LIKE THE GOOGLES AND APPLES WHO WANT TO TAKE OVER THE IN-CAR EXPERIENCE WITH THEIR DEVICE AND THEY WANT A WAY TO INTERACT WITH IT IN THE CAR.

WE DON'T HAVE ANY REAL CONTROL OVER WHAT THEY ARE DOING, AND THAT'S PROBABLY ONE OF THE AREAS GOING FORWARD THAT WE'LL SEE SOME AREAS OF UNCLARITY THERE.

LIKE YOU SAID, THE INSURANCE

COMPANIES ARE PULLING BOTH POSITION AND VARIOUS DRIVING BEHAVIOR PATTERNS THAT DON'T GO THROUGH ANY OF OUR SYSTEMS IN THE CAR AT ALL.

THEY'RE TAKING DATA OFF THE REGULATED PORT OUT PUT AND TAKING IT AWAY.

WE'RE SEEING MORE OF THAT AND THERE WILL BE MORE TO COME.

>> THAT'S REALLY INTERESTING TOO.

A RELATED QUESTION I HAD IN THOSE POINTS YOUR PERSPECTIVES OF OPENING VERSUS CLOSED SYSTEMS, SO SYSTEMS THAT ALLOW OR ENCOURAGE AT DEVELOPERS OR NON-OEM PARTIES TO CONTRIBUTE EITHER APPLICATIONS OR COLLECT DATA FROM THE DEVICES AS OPPOSED TO COMPLETELY CLOSE PROPRIETARY SYSTEM THAT RESTRICT ACCESS.

ARE THERE BENEFITS TO ONE APPROACH OR THE OTHER OR DOES ONE PROVIDE MORE SECURITY OR MORE PROTECTION.

CAN YOU JUST SORT OF TALK ABOUT THOSE ISSUES?

>> MY NAME WAS CALLED OUT SO I GUESS I MIGHT AS WELL BE THE FIRST ONE TO REPLY.

I THINK THERE ARE BENEFITS AND ADVANTAGES AND DISADVANTAGES OF BOTH OPEN AND CLOSED MODEL IS AND I HONESTLY DON'T KNOW WHAT IS THE RIGHT SOLUTION IN EACH INDIVIDUAL CASE WITHOUT LOOKING AT IT IN MORE DEPTH.

I KNOW THAT COMPUTER RESEARCHERS OFTEN TIMES TALK ABOUT THE RISKS WITH CLOSED SYSTEMS BEING THAT IF THEY ARE USING PROPRIETARY SECURITY MECHANISMS MAYBE THERE'S NO WAY FOR THE PUBLIC TO KNOW WHETHER A METHAMPHETAMINE IS SECURE OR NOT.

THERE ARE RISKS WITH THE OPEN SYSTEMS IN THE SENSE IT GIVES PEOPLE MORE LIBERTY TO INJECT CODE INTO THE SYSTEM AND THERE'S BEEN CASES OF TROJAN OR MALICIOUS ARE BEHAVIOR BEING INJECTED INTO OPEN SYSTEMS. I DON'T KNOW IF I HAVE, THIS ONE IS RIGHT ONE IS WRONG ANSWER BUT I DO BELIEVE THERE ARE TRADE OFFS IN BOTH DIRECTIONS.

>> IS THAT A RISK WITH ACCESS TODAY OPEN SYSTEM WHERE THE CONSUMER IS GIVEN ACCESS TO THE DATA.

IS THERE SECURITY RISK THERE?

>> CONSUMERS GETTING ACCESS TO THE DATA.

THAT OPENS ANOTHER SET OF ISSUES WE HAVEN'T TALKED TOO MUCH ABOUT BUT WHOSE DATA DOES THE SYSTEM BELONG TO.

I'M THINKING ABOUT SOME OF THESE APPLICATIONS WHERE IT MIGHT BE PROFILING INFORMATION ABOUT THE DRIVER.

THE INTERESTING THING TO ME ABOUT THE DRIVER THERE MIGHT ACTUALLY BE MULTIPLE PEOPLE WHO LEGITIMATELY DRIVE THE CAR SO HOW DO WE KNOW WHOSE DATA BELONGS TO WHOM.

>> WHEN WE SAY OPEN VERSUS CLOSED WE SHOULD DEFINE MORE CAREFULLY.

RELATED TO SECURITY ITSELF, IN THE CASE OF TOYOTA, WE USE CLOSED SYSTEMS IN THE SENSE OF THE WAY WE DON'T EXPOSE THEM TO THIRD PARTY DEVELOPERS.

HOWEVER WE DON'T USE CLOSED SECURITY.

WE ARE USING OPEN SECURITY STANDARDS THAT HAVE BEEN PEER REVIEWED AND ARE FULLY SCRUBBED IN THE SPACE TO MAKE SURE WE CAN

BE THERE.

WHEN WE SAY CLOSE THE SYSTEMS
WHAT WE'RE TALKING ABOUT IS
CLOSED DEVELOPMENT SYSTEMS AND
CLOSED SOFTWARE SYSTEMS THAT
HAVE SOME MORE MODE -- MODE COME
OF CONTROL TO THEM.

IT'S NOT A PANACEA, IT'S NOT
GUARANTEED.

IT'S IN THE LAYER OF DEFENSES WE
HAVE.

OBVIOUSLY THE BENEFIT TO THAT IS
WE HAVE ANOTHER LAYER.

THE DOWN SIDE IS IT CAN STIFLE
INNOVATION.

HERE'S OUR API'S COME ON IN YOU
CAN HAVE ACCESS TO OUR CAR DATA
PLEASE DEVELOP AROUND.

IT TOYOTA HASN'T DONE THAT
PARTIALLY BECAUSE OF THIS RISK,
THIS EXPOSING THIS CRITICAL
VEHICLE DATA WITHOUT KNOWING
WHAT PEOPLE ARE GOING TO DO WITH
IT, THE ABILITY TO CONTROL WHAT
THEY DO WITH IT WE CONSIDER A
RISK AND AT THIS TIME WE'RE
CHOOSING NOT TO DO THAT.

>> JOHN, DO YOU HAVE ANY INSIGHT
ON WHAT CONSUMERS HAVE SAID THEY
WANTED TO ANY DEGREE AS IT
RELATES TO OPEN AND CLOSED
SYSTEMS?

>> I THINK OPEN AND CLOSED IS
SOMETHING THAT MOST CONSUMERS
WOULDN'T FULLY UNDERSTAND.
BUT WHAT WE LOOKED AT IS WHEN
YOU TALK ABOUT CHOICE, WHAT CAN
YOU DO WITH THE DATA.

CAN YOU REPURPOSE IT, DO YOU
HAVE ACCESS TO IT.

I THINK OVER A NUMBER OF ISSUES,
MOTORISTS AT LARGE, TRIPLE A
MEMBERS HAVE MADE IT PRETTY
CLEAR THEY WOULD LIKE TO HAVE
ACCESS, THEY WOULD LIKE TO HAVE
CONTROL OVER IT AND BE ABLE TO

DETERMINE ON YOU IT'S USED IF
IT'S USED AT ALL.

I THINK THAT'S IMPORTANT AS WE
THINK ABOUT WHERE THIS MOVES IN
THE FUTURE, NOT JUST TODAY.

IT'S VERY DIFFICULT TO SAY WHAT
IT WILL BE BUT THE FACT IS THAT
THIS DEVICE THAT THE CONSUMER
OWNS IS PRODUCING DATA AND THEY
SHOULD HAVE SOME SAY WHERE IT
GOES AND HOW TO MAKE THEIR LIFE
BETTER.

DATA IS ALWAYS AN ISSUE BUT
CHOICE IS HUGE.

>> I THINK WE'RE CONFLATING SOME
ISSUES.

JOHN AND I AGREE WITH YOU
COMPLETELY SHARING THAT DATA
WITH THIRD PARTIES IN WAYS THE
CONSUMER MIGHT NOT EXPECT
CONTEXTURALLY OR DID NOT CONCEPT
TO EITHER GENERALLY OR
EXPRESSLY.

BUT IF YOU'RE TALKING ABOUT THE
COMBINATION OF CONSUMER DATA
WITH THE PROPRIETARY ALGORITHM
OR SYSTEMS SO IT REALLY IS
COMBINED WITH PROPRIETARY DATA
AS WELL AS OTHER MOTORISTS DATA.
I'M NOT SURE WE WANT TO HAVE A
SYSTEM WHERE UNCONSUMERS HAVE
ACCESS TO THAT FOR SECURITY
REASONS AND OWNERSHIP AND
INCENTIVIZATION.

>> I THINK THAT'S A FINE POINT.
AND YOU'RE RIGHT.

SO THERE'S CERTAINLY PROPRIETARY
SOFTWARE AND INTELLECTUAL
PROPERTY.

THAT'S CLEARLY FROM MY
PERSPECTIVE THE RUN OF THE
MANUFACTURER.

BUT THE DATA THAT'S PRODUCED
ABOUT HOW I USE MY CAR I THINK
ULTIMATELY IS MINE AND I SHOULD
BE ABLE TO DETERMINE WHAT

HAPPENS.

I AGREE, THERE IS SOME BENEFIT IN ANONYMOUS DATA BEING USED TO TRACK TRENDS AND SO ON, INCREASE VEHICLE SAFETY AND THAT'S IMPORTANT.

>> IN FACT YOU DON'T WANT TO GIVE AN INCENTIVE TO KEEP IT IDENTIFIED WHEN THE TREND IS SO MUCH TOWARDS PRIVACY THROUGH ANONYMIZATION.

>> ULTIMATELY THE CHOICE WOULD COME DOWN TO THE CONSUMER.

>> I THINK THAT RAISES AN INTERESTING QUESTION BECAUSE IF WE'RE TALKING ABOUT CONSUMER DATA AND WHO HAS ACCESS TO THE DATA, HOW, HOW, HOW DO YOU PROVIDE INFORMATION OR NOTICE AND CHOICE OR CAN YOU PROVIDE NOTICE AND CHOICE, THAT'S PART ONE OF THE QUESTION.

AND PART TWO OF THE QUESTION IS WE'RE TALKING ABOUT CARS.

WE'RE NOT TALKING ABOUT SAY A SMART PHONE THAT HAS A SHELF LIFE OF TWO TO THREE YEARS.

WE'RE TALKING ABOUT SOMETHING THAT CONCEIVABLY IN THE CASE OF FINE AUTOMOBILES LIKE TOYOTA CAN BE ON THE ROAD FOR 20 YEARS CONCEIVABLY OR MORE AND THAT CAN HAVE MULTIPLE OWNERS OVER TIME.

AND IF THE DATA'S BEING COLLECTED BY QUOTE THE CAR IT NONETHELESS COULD POTENTIALLY HAVE MULTIPLE OWNER OVER TIME, HOW DO WE DEAL WITH THAT.

HOW DO WE DEAL WITH DATA ABOUT MULTIPLE USERS SLASH OWNERS AND NOT JUST SIMPLY DRIVERS IN THE SAME FAMILY, FOR EXAMPLE.

HOW DO WE DO THAT, HOW DO WE PROVIDE INFORMATION TO CONSUMERS SO THAT THEY KNOW WHAT INFORMATION OF THEIRS IS BEING

COLLECTED AND HOW IT'S BEING USED.

>> YOU'RE REALLY ASKING TWO QUESTIONS IS ONE HOW DO WE PROVIDE NOTICE AND JOYCE GENERALLY IN A CONNECTED CAR.

>> OR CAN WE.

>> AND THEN THE QUESTION OF WHAT DO YOU DO WITH MULTIPLE USERS.

WE HAVE MULTIPLE USERS OF DEVICES ALL THE TIME.

IT'S NOT JUST RESTRICTED TO CARS AND WE DON'T TYPICALLY PUT THE BURDEN ON THE MANUFACTURER OF THE DEVICE OF A LAPTOP OR DESKTOP OR EVEN A MOBILE DEVICE TO FIND OUT WHO IS USING IT AT THAT PARTICULAR TIME.

THERE REALLY IS A CONSUMER RESPONSIBILITY TO PROTECT THEIR OWN DATA AND ALSO TO INFORM OTHER USERS.

THAT'S WHY WE OFTEN SEE WHEN WE'RE ON WEBSITES, IF YOU'RE AT A PUBLIC COMPUTER DON'T SAVE YOUR PASSWORD ON THIS COMPUTER. SO WE NEED TO THINK HARD BEFORE WE IMPOSE AN OBLIGATION ON THE CREATOR OF THE EQUIPMENT OR EVEN THE PROVIDER OF THE SERVICE TO ANTICIPATE WHO VARIOUS USERS MIGHT BE.

I DON'T THINK IT'S AN EASY QUESTION.

I UNDERSTAND THE CONCERN.

>> BUT CARS ARE DIFFERENT THOUGH AREN'T THEY, JOHN?

>> I THINK MAYBE THERE'S TWO WAYS TO LOOK AT IT.

SO RIGHT THE CARS ARE TREMENDOUSLY COMPLEX.

THE MOST BASIC FUNCTION IS MONITORED.

ALMOST EVERYTHING THE CAR DOES IS CONTROLLED BY COMPUTER.

IT HAS ALMOST NO VALUE TO A

THIRD PARTY.

IF YOU DROVE YOUR CAR ONE WAY I WOULD REALLY NOT HAVE ANY PURPOSE, COULDN'T MAKE ANY VALUE OUT OF THAT.

WHAT I COULD DO IS YOUR CONTACTS THAT ARE IN YOUR PHONE OFTEN POPULATE INTO THE DASH SO THE ABILITY TO CLEAR THAT OUT IS IMPORTANT.

I THINK THE DATA THE CAR PRODUCES IS PROBABLY NOT THE CONCERN WHEN YOU THINK OF RESELLING THE CAR.

THE SERVICES THAT GO ALONG WITH THAT IS WHAT DATA HAS BEEN CAPTURED OFF OF THE VEHICLE I THINK IS THE ONE THAT NEEDS TO BE ADDRESSED.

AND TYPICALLY YOUR SERVICE WOULD CHANGE IN OWNERSHIP.

SO YOU WOULD HAVE TO HAVE A NEW CONTRACT.

BUT I DON'T THINK THE CAR PRODUCES SO MUCH AND CERTAINLY DOESN'T STORE SO MUCH OVER A PERIOD OF TIME THAT DATA CONSUMERS SHOULD BE REALLY CONCERNED.

>> TO ANSWER YOUR FIRST QUESTION ABOUT NOTICE AND CHASE, WE HAVE TO REMEMBER THAT SOME OF THESE SYSTEMS DON'T HAVE SCREENS.

THEY ARE SIMPLY DEVICES WITH A BUTTON THAT ALLOW YOU TO CALL FOR MACHINE ASSISTANCE OR WILL DETECT WHEN THERE IS AN EMERGENCY.

WE ARE SO USED TO NOTICE OF CHOICE IN THE WORLD OF SCREENS WHETHER THEY'RE BIG OR SMALL. I'M NOT SURE WE CAN PORT OVER DIRECTLY WHAT WE'RE USED TO WITH RESPECT TO MOBILE DEVICES WHICH IS TRYING A NEW APP OR IT'S ABOUT TO I'M -- ENGAGE IN A NEW

FUNCTION IT POPS UP AND ASKS US IF YOU WOULD LIKE US TO UPDATE YOUR DATA ESPECIALLY WHEN YOU'RE GOING 80 MILES AN HOUR.

WE NEED NEW WAYS TO PROVIDE NOTICE AND CHOICE AND CONTEXT WILL SOLVE A LOT OF THESE ISSUES WHERE THERE ISN'T A NEED FOR THOSE SPECIFIC CHOICES AT THE MOMENT THE DATA WAS BEING COLLECTED.

>> REGARDING TOYOTA'S FEELING, TOYOTA'S BASIC POSITION IS THE CONSUMER OWN THE DATA. AND THAT'S THE DRIVING POLICY BEHIND WHAT WE DO.

WE COLLECT VERY LITTLE INFORMATION ON THE CAR OR AS JOHN MENTIONED IT'S REALLY NOT THAT RICH AS MANY PEOPLE MAY THINK.

HAVING SAID THAT WE HAVE VERY CLEAR STANDARDS AT THE TIME THE CONSUMER BUYS THE CAR, PLAIN LANGUAGE, MULTIPLE CHOICES OF LEVELS THEY CAN OPT IN OR OPT OUT.

WE DO HAVE THE, YOU DON'T WANT TO BE PUTTING UP, IS IT OKAY TO USE MY POSITION WHILE YOU'RE DRIVING IN A CAR, DRIVING DOWN THE ROAD IN A CAR.

BUT WE DO OFFER A VERY CLEAR WAY FOR PEOPLE TO OPT OUT IF THEY CHOOSE TO IN A SIMPLE AND EASY TO UNDERSTAND WAY.

WHEN THE CAR'S SOLD TO THE NEXT PERSON, ANY OFF BOARD DATA FROM THAT CAR, AS SOON AS THE OWNER CLOSES OUT THOSE ACCOUNTS, EITHER THERE IN-TUNE ACCOUNT OR THEIR INFORM ACCOUNT OR ANY OF THOSE TELEMATICS OR SYSTEMS, AS SOON AS THE ACCOUNT IS CLOSED THE DATA'S GONE.

IT CANNOT BE RETRIEVED.

THE DEVICES IN THE CASE OF THE MODEM IN THE CAR, THE MODEM IS SHUT OFF AND WE CANNOT TURN THAT MODEM BACK ON UNLESS THE CAR, THE OWNER OF THE CAR, NEW OWNER OF THE CAR TAKES PHYSICAL ACTION TO DO IT.

WE CAN'T WAKE A CAR UP REMOTELY. ONCE THE CAR IS ASLEEP, IT CANNOT BE AWAKENED REMOTELY BY DESIGN.

>> YOSHI PROBABLY KNOWS THAT.

>> I DON'T KNOW, AGAIN IT ALL DEPENDS ON DIFFER MANUFACTURERS SO I DON'T WANT TO SAY ANYTHING ABOUT TOYOTAS BUT I THINK KAREN'S QUESTION IS VERY INTERESTING AND I DON'T HAVE AN ANSWER.

I HEARD WHAT THE OTHER PANELISTS SAY.

A FEW THINGS I WILL CHIME IN ON. THERE WAS COMPARISON BETWEEN APPS ON THE CAR AND APPS ON THE PHONE.

I THINK IT'S IMPORTANT TO NOTE THAT MAYBE WHAT WE HAVE FOR THE PHONE ISN'T ACTUALLY THE RIGHT THING EVEN FOR THE PHONE THERE'S RESEARCH GOING ON WHAT'S THE RIGHT NOTICE HAVING CEPT ON THE PHONE.

MAYBE WE NEED SOMETHING DIFFERENT FOR A CAR BUT WE SHOULDN'T BEGIN BY THE ASSUMPTION THAT THE PHONE IS ACTUALLY THE RIGHT STRATEGY IT'S VERY INTERESTING TO HEAR WHAT HAPPENS WHEN A CAR IS SOLD.

I THINK THERE ARE A LOT OF CHALLENGES IN THIS SPACE.

I THINK ALL THE PANELISTS REALIZE THERE ARE THESE CHALLENGES, A NEW OWNER RENTING A CAR, HAVING SOMEONE ELSE'S CHILD OR SOMEONE ELSE DRIVE THE

CAR.

THESE ARE ALL VERY INTERESTING CHALLENGES.

JUST TO KIND OF POINT YOU TO THE COMPLEXITY OF THIS SPACE, I WILL MENTION THERE ARE APPS YOU CAN BUY TO DOWNLOAD ON YOUR SPOUSES PHONE SO YOU CAN TRACK THEM.

SO THERE'S, THERE IS THE POTENTIAL FOR TRYING TO FIGURE OUT, THERE'S POTENTIAL RISK AND ALSO OPPORTUNITY TO TRY TO ADDRESS THOSE RISKS.

AND THEN LASTLY I WOULD SAY THAT, AND I FORGET THE EXACT DETAIL OF THE STUDY, BUT GIVEN MINIMAL DRIVING DATA BASIC CLARIFICATION DATA ABOUT HOW YOU'RE MANEUVERING THE CAR, IT IS POSSIBLE TO LEARN THINGS LIKE IS THIS PERSON AN AGGRESSIVE DRIVER, PASSIVE DRIVER, THIS AND THAT.

AND WHETHER SHARING THAT INFORMATION IS A RISK, I DON'T KNOW.

BUT THERE'S A LOT OF POTENTIAL USES FOR DATA THAT WE MAY NOT THINK OF OFF THE TOP OF OUR HEAD.

>> BECAUSE WE'RE RUNNING OUT OF TIME HERE, WE HAVE QUESTIONS. ALTHOUGH A COUPLE OF THEM WE CAN'T READ THE HANDWRITING SO WE WILL DO OUR BEST.

SO THE FIRST QUESTION IS FOR YOSHI.

WHAT IS THE NUMBER ONE SECURITY ISSUE YOU THINK THE INDUSTRY NEEDS TO ADDRESS.

ONLY ONE.

>> I WOULD SAY THE NUMBER ONE SECURITY ISSUE THE INDUSTRY NEEDS TO ADDRESS IS AWARENESS EARLY ON IN THE DESIGN CYCLE OF A TECHNOLOGY.

AND BOY THAT I MEAN GOING BACK TO THE VERY BEGINNING WHERE YOU'RE FIGURING OUT THE REQUIREMENTS FOR THE TECHNOLOGY, WHAT ARE THE POTENTIAL ISSUES AND HOW CAN WE MITIGATE THEM. MAYBE THIS IS AN OPPORTUNITY TO SAY WE ACTUALLY DEVELOPED A TOOLKIT, THE SECURITY AND PRIVACY THREAT DISCOVERY CARDS THAT WE DESIGNED TO HELP PEOPLE WHO ARE NOT COMPUTER SECURITY EXPERT BRAINSTORM ABOUT SECURITY THREATS AND THEY'RE AVAILABLE OUTSIDE IF YOU WANT.

>> YES, THERE ARE SEVERAL AVAILABLE OUTSIDE IF YOU WANT THEM.

GENEROUSLY DONATED.

>> WHAT ABOUT GUIDELINES FROM THE PC, DO YOU THINK THOSE WOULD BE USEFUL SECURITY GUIDELINES OR TO WHAT DEGREE.

>> THAT'S A GOOD QUESTION AND I SHOULD SAY I PROBABLY SHOULDN'T ANSWER THAT FOR A NUMBER OF ROSE.

ONE IS I'M NOT A LEGAL, PERT AND A POLICY EXPERT AND SO ON. BUT I WOULD LOVE TO HAVE THAT INFORMATION AT SOME OTHER TIME.

>> THAT WAS A GENERAL QUESTION FOR THE PANEL.

THE PROCESS RECOMMENDATIONS THAT THEY MAKE AND ENFORCEMENT ACTIONS THAT IDENTIFIES DEFICIENCIES IN THE APPLICATION OF STEPS, I WOULD NOT LIKE TO SEE THE MISSION OF THE FEC BECOME THE GRANULAR TECHNOLOGY PRESCRIBER.

>> I THINK IT'S FANTASTIC THAT THEY'RE I'M GAUGING WITH THIS TOPIC NOW.

IT'S EARLY IN THE PROCESS AND I THINK JUST UNDERSTANDING WHAT'S

HAPPENING AND MONITORING IT AS IT DEVELOPED IT WILL BECOME INCREASINGLY APPARENT WHAT NEEDS TO BE IN THE FUTURE.

THIS IS A GREAT FIRST STEP TO START UNDERSTANDING WHAT IS AND WHAT COULD BE.

>> THIS KIND OF OPEN DISCUSSION JUST AS A REMINDER FROM OUR PREVIOUS COMMENT, IF WE'RE GOING TO DO THIS WE SHOULD OPEN IT UP TO THE ENTIRE SPACE OF PEOPLE WHO ARE IN THE AUDIENCE, NOT JUST THE CARMAKERS THEMSELVES BUT ALL THE PEOPLE WHO ARE PLAYING IN THIS SPACE.

>> THIS WEEK AT THE AUTO SHOW THEY HAD A HACKATHON WHERE THEY CAME UP WITH THESE PRIVATE SECURITY ENHANCING TECHNOLOGIES. I SAW A COUPLE BLOGS REPORTING ON THEM TODAY.

WE SHOULD TAKE A LOOK AT THEM. THEY ANNOUNCED THEM TODAY AT NOONTIME.

>> ANOTHER QUESTION ASKS IF THE PANEL CAN NOTE AREAS THAT ARE UNIQUE TO CONNECTED CARS FROM ANY OTHER CONNECTION. WHAT IS UNIQUE ABOUT THE CONNECTIONS INVOLVABLE AUTOMOBILES AS OPPOSED TO OTHER KINDS OF CONNECTIONS. IF ANY.

THE ANSWER COULD BE NONE.

>> THERE'S A LOT OF SIMILARITY. THE RISKS OF DATA USE AND MISUSE OF DATA IS COMMON.

THE FACT IT'S AN AUTOMOBILE MOVING DOWN THE ROAD, IT'S LIVING IN A RISKIER ENVIRONMENT. JOHN MENTIONED THE ISSUE OF DISTRACTION.

ONE THING THAT'S VERY CLEAR IS THAT ONE OF THE BIGGEST PROBLEMS OF BRINGING IN ALL THIS

TECHNOLOGY, THE REAL WORLD APPLICATIONS AND THE STUDIES THAT PEOPLE LIKE TRIPLE A HAVE DONE AND WE'VE SEEN AS WELL THE LEVEL OF DISTRACTIONS THESE FEATURES BRING TO THE CAR IS EXTRAORDINARY.

IT'S ON THE ORDER OF MAGNITUDE MORE DISTRACTING TO DEAL WITH SOME OF THESE IN SUBOPTIMAL WAY LIKE ON A PHONE LIKE TUNING YOUR RADIO OR EVEN EATING IN THE CAR. WE THINK THE DISTRACTED DRIVING ELEMENT OF IT IS PROBABLY A REALLY UNIQUE DOMAIN SPACE THAT WE ABSOLUTELY HAVE TO ADDRESS. WE CAN'T JUST SEPARATE IT, WE'RE NOT TALKING ABOUT DATA SECURITY BUT WE HAVE A RESPONSIBILITY TO PROVIDE THE RIGHT INFORMATION. LIMITING IT TO THE RIGHT USES THAT THE DRIVER IS MORE AWARE.

>> YOU WILL SAY THAT ON THAT POINT YOU SEE A LOT OF INNOVATION AND EXPERIMENTATION GOING ON.

A COUPLE YEARS AGO WHEN TECHNOLOGY FIRST STARTED IN THE CAR YOU HAD DIMES YOU HAD TO LOOK AT I INTERACTION ON THE SCREEN.

ONE CAR I OWNED IT TOOK FIVE STEPS TO CHANGE THE RADIO STATION WITH THIS DIAL.

I KIND OF JOKED A COUPLE YEARS AGO AT THE AMERICAN AUTO SHOW I HAD A PICTURE OF AN iPad STRAPPED TO THE STEERING WHEEL. I SAID THIS IS JUST A JOKE.

WELL IT'S NOT A JOKE AND IN FACT BIG SCREENS ACTUALLY MAY BE SAFER BECAUSE THE iCONS ARE BIGGER, IT'S EASIER TO INTERACT WITH MORE QUICKLY AND IT JUST MAY BE A BETTER INTERFACE. WE'RE SEEING EXPERIMENTATION BUT

I THINK IT COULD BE USEFUL IN THAT ISSUE.

>> JUST TO BUILD ON THAT. COMING BACK TO WHAT'S DIFFERENT, FIRST OFF WHEN YOU THANK YOU ABOUT A CELL PHONE MOST CONSUMERS KNOW IT'S ASKING YOU ALL THE TIME DO YOU WANT TO SHARE MY LOCATION, CAN I DO THIS.

I'M NOT SURE THE CONSUMER AWARENESS IS NEARLY AS HIGH WITH THE CAPABILITIES OF THE CAR AND WHAT CAN BE DONE WITH IT.

I THINK THAT'S A DITCHES. I THINK SECONDLY IT'S THE AUTOMOBILE AND THERE'S A DIFFERENT PASSION AROUND THE CAR THAN THERE IS FOR CELL PHONE OR ANOTHER DEVICE.

WHEN YOU THINK THAT SOMEBODY COULD KNOW HOW FAST YOU'RE DRIVING OR WHAT YOU'RE DOING, WHERE YOU ARE, TYPICALLY THE CAR REPRESENTS SOME FREEDOM.

AND THAT CAN BE QUICKLY COMPROMISED WITH TECHNOLOGY. SO I THINK THAT'S A HUGE DIFFERENCE.

>> ARE THERE ANY SIGNIFICANT ISSUES RELATED TO UPDATE? SO I THINK IT IS MENTIONED THE ABILITY TO UPDATE VEHICLES REMOTELY.

THERE'S AN EXPECTATION OF LIFE SPAN FOR SAY CELL PHONES AND LAPTOPS THAT I THINK ARE DIFFERENT.

AT LEAST I HAD A CAR FROM LIKE 87.

>> YOU NEED TO UPDATE IT.

>> I NEED TO UPDATE THE CAR, RIGHT.

WHEN THERE ARE EXPECTATIONS FOR LONG-LASTING OWNERSHIP, ARE THERE ANY UNIQUE ISSUES ABOUT

MAINTAINING SUPPORT FOR THE
AUTOMOTIVE SYSTEMS IN THAT CASE.

>> I GUESS THAT WOULD BE ME.
WE CERTAINLY KNOW HOW TO DO IT.
IT'S NOT A NEW IDEA OR A NEW
CONCEPT.

THE QUESTION IS WHAT ARE THE
BENEFITS VERSUS THE RISKS.
AND WHERE WE ARE RIGHT NOW IS WE
HAVE, WE DON'T DO OVER THE AIR
UPDATES TO MOST OF OUR SYSTEMS
IN TUNE APP SUITE, WE CAN PUSH
THEM TO A PHONE WITH SOME
LIMITED INTERACTION WITH THE
INFOTAINMENT SYSTEM.

WE DON'T CURRENTLY DO OVER THE
AIR SOFTWARE UPDATES.
WE CAN BUT WE CHOOSE NOT TO AT
THIS TIME BECAUSE WE REALLY
TONIGHT THINK IT'S WELL
UNDERSTOOD.

I MEAN THE POINT OF FIVE, TEN
YEARS FROM NOW THAT CAR WE BUILT
TOMORROW IS GOING TO BE OUT
THERE AND PERHAPS IT'S OUTDATED
IN ITS ABILITY, WE DON'T WANT
PEOPLE ATTACKING TEN YEAR OLD
CARS EITHER.

IT'S AN AREA WE NEED TO RECEIVE
A CAUTION ABOUT.

>> IN TERMS OF SO FOR SOMETHING
WHEN YOU HAVE A VEHICLE THAT CAN
LAST 10, 15, 20 YEARS, HOW DO
YOU ENSURE THAT DATA'S UPDATED?
IS THAT THAT WOULD REQUIRE THE
PERSON HAVING TO GO TO THEIR
DEALER OR UP AUTO REPAIR SHOP.

>> WHAT WE DO NOW IS EITHER
THROUGH A DEALER FOR UPDATE OR
FOR EXAMPLE MAKING A USB TYPE,
USB STICK AVAILABLE.
BUT THAT'S MOSTLY LIMITED TO
INFOTAINMENT.

OUR CRYSTAL UPDATES ARE DONE AT
THE DEALER.

>> SINCE FEBRUARY I'VE HAD FIVE

UPDATES AND THE ONE THEY ANNOUNCED TOE WAS THE FIRST SAFETY RELATED UPDATE.

>> IT WAS NOT A TOYOTA.

>> NOT A TOYOTA.

ALL THE OTHERS WERE CONVENIENCE AND ENHANCEMENT RELATED.

>> I DRIVE A STICK.

ANYWAY, THIS LEADS INTO ONE OF THE QUESTIONS WAS AUTO MANUFACTURERS CAN DOWNLOAD DATA FROM CARS DURING MAINTENANCE VITES.

MAYBE WE NEED TO CLARIFY WHEN YOU DO VISIT YOUR DEALER AND YOU'RE GETTING THESE UPDATES WHAT KIND OF INFORMATION ARE THEY COLLECTING?

>> MAYBE I CAN T! MAYBE I CAN TOUCH ON THAT.

THE DATA -- WHEN YOU THINK OF GOING TO GET YOUR VEHICLE SERVICED, IF YOU'RE GOING IN BECAUSE IT LIGHT IS ON, IT'S TELLING YOU SOMETHING IS WRONG AND YOU WANT TO GET THAT FIXED. THE DATA DOESN'T KEEP A RECORD OF WHAT YOU DID THIS WEEK. MOST OF THE DATA IS VOLATILE AND ONLY SAVES IT IN TERMS OF WHAT TURNED ON THE LIGHT.

SO WHAT IS THE THROTTLE POSITION SENSOR IN THE MASS AIR FLOW SENSOR.

THAT IS REALLY NOT VERY EXCITING DATA.

WELL, MAYBE TO ME BUT THAT'S ME. BUT SO REALLY YOUR -- WHAT YOU'RE TALKING ABOUT IS A DIAGNOSTIC.

THIS FAILED ON THE CAR.

>> IT'S NOT RECORD OF HOW FAST YOU HAVE BEEN AND EVERYTHING THAT HAPPENED.

>> MOST OF IT IS VOLATILE AND OUT IN 30, 45 SECONDS.

>> WHAT?

>> NO, NO, I WAS ACTUALLY GOING TO SAY I THINK WE'RE RUNNING OUT OF TIME.

I GUESS WITH THE LAST FEW MINUTES THAT WE HAVE, WE WOULD LIKE TO GIVE EACH PANELIST A PARTING THOUGHT THEY THINK IS IMPORTANT ABOUT THIS YEAR. YOU'RE FIRST?

>> I DON'T HAVE MUCH TIME TO THINK.

I THINK THAT THE PARTING THOUGHTS ARE, CONTINUE TO ENJOY THE AUTOMOBILES THAT YOU HAVE AND BY THE SAME TIME MY PARTING THOUGHT IS, FOR EVERYONE WHO IS THINKING ABOUT A FUTURE TECHNOLOGY, WHETHER IT IS THE NEXT GENERATION AUTOMOBILE, NEXT GENERATION MEDICAL DEVICE, HOME, OR WHATEVER, TRYING TO KIND OF THINK ABOUT SECURITY AND PRIVACY ISSUES PROACTIVELY, IT'S PROBABLY A LOT BETTER FOR EVERYONE IN THE LONG RUN.

>> I JUST RECOMMEND PEOPLE TAKE A LOOK AT THE PAPER ON IT, THE UPDATED PRIVACY PARADIGM. WE DO NEED TO THINK ABOUT NEW WAYS WE WE DEAL WITH TECHNOLOGIES LIKE THE CONNECTEDLAR.

>> WHAT WE TALKED ABOUT TODAY IS HOW EXCITED THE AUTOMOTIVE INDUSTRY IS AND HOW IT'S CHANGING.

I THINK HAVING THE DIALOGUES IS CRITICAL CELT AND I LOOK FORWARD TO CONTINUING THE CONVERSATIONS IN THE FUTURE.

>> THANK YOU FOR HAVING US. I THINK -- IN ADDITION TO WHAT THESE GUYS SAID, FROM TOYOTA'S POINT OF VIEW, THE NUMBER ONE ITEM WE HAVE IS THE TRUST OF OUR CONSUMERS AND WE'RE NOT GOING TO

DO THINGS TO VIOLATE THAT
TRUEVIEW FORECAST.

>> THANK YOU VERY MUCH.

>> THANK YOU.

[APPLAUSE]

>> IF EVERYBODY COULD GET SEATED
WE ARE GOING TO GET STARTED WITH
THE FOURTH PANEL.

HELLO, I'M BEN DAVIDSON, AN
ATTORNEY IN THE DIVISION OF
MARKETING PRACTICES.

WITH ME IS MANEESHA, THE
ASSOCIATE DIRECTOR OF THE
DIVISION OF PRIVACY AND IDENTITY
PROTECTION.

OUR FOURTH PANEL OF THE DAY WILL
FOCUS ON THE BROADER PRIVACY
ISSUES RAISED BY INTERNET OF
THINGS.

IT WILL BE STRUCTURED AS A
DISCUSSION AROUND A SERIES OF
SCENARIOS THAT MANEESHA AND I
WILL RAISE.

BEFORE STARTING I WANT TO
INTRODUCE OUR PANELISTS.

TO MY LEFT, RYAN CALO, ASSISTANT
PROFESSOR OF LAW, UNIVERSITY OF
WASHINGTON.

RYAN FOCUSES ON THE INTERSECTION
OF LAW AND EMERGES TECHNOLOGY.

NEXT TO HIM IS DAN CAPRIO,
INDEPENDENT COUPLE ANT.

DAN SERVED AT THE SUBJECT MATTER
EXPERT TO THE EUROPEAN EXPERT
GROUP ON INTERNET OF THINGS AND
ADVISES THE TRANSATLANTIC
COMPUTING CONTINUOUS ALLIANCE.

NEXT IS MICHELLE CHIBBA WHO
OVERSEES THE POLICY DEPARTMENT
AND PROJECTS AT THE OFFICE OF
INFORMATION AND PRIVACY
COMMISSIONER OF ONTARIO.

OR HER OFFICE DUCTS RESEARCH AND
ANALYSIS IN PRIVATELY ADDRESSING
ISSUES REGARDING THE PUBLIC.

NEXT IS -- FROM HAPPTIQUE, A HEALTH APP CERTIFICATION COMPANY WHOSE CERTIFICATION STANDARDS AND THEY CERTIFY HEALTH APPS FOR PRIVACY AND SECURITY THAT HAPPTIQUE HAS DESIGNED.

NEXT TO HIM DAVID JAY COULD BE, CONSUMER PROTECTION COUNSEL PRIVACY INFORMATION CENTER.

DAVID FOCUSES ON REPRESENTING CONSUMER PRIVACY INTERESTS BEFORE CONGRESS AND THE COURTS AND FEDERAL AGENCIES.

LAST IS MARC RODGERS, PRINCIPLE SECURITY RESEARCH OUT LOOK. MARK'S CORE EXPERTISE IS AT A WHITE HACK HACKER AND HE COMMUNICATES ISSUES TO CONSUMERS AND INDUSTRY IN A RESPONSIBLE WAY.

MARK EVENTUALLY HACKED -- AND GOOGLE GLASS.

LET'S GET STARTED WITH OUR FIRST SCENARIO.

SUE IS TECH SAVVY.

IN HER HOME SHE HAS SEVERAL DEVICES, SMART OVEN, LIGHTS, THERMOSTAT AND SMART ALARM SYSTEM.

SHE OBJECTS. NONRESPONSIVE THE CONVENIENCE THESE DEVICES OFFER BUT IS FRUSTRATED AS HAVING SEPARATE CONTROLS FOR EACH DEVICE.

SO SHE STUDIES TO COME UP WITH A SINGLE SYSTEM THAT CAN INTEGRATE THESE DEVICES AND ADD CONTROLS.

SHE DECIDES TO RUN -- SORRY ABOUT THAT.

SUE'S INNOVATION IS TO USE ONE SINGLE SMARTPHONE DEVICE TO CONTROL THE ITEMS THAT CAN LOCK AND UNLOCK THE FRONT DOOR, TURN OFF AND ON HER ALARM SYSTEM AS SHE APPROACHES AND CONTROL THE LIGHTS IN HER BEDROOM SO THAT

THAT TURN ON BEFORE HER ALARM WAKES HER UP.

WE WILL START WITH MICHELLE. AT WHAT STAGE SHOULD SUE START THINKING ABOUT PRIVACY ISSUES.

>> FIRST OF ALL THANK YOU FOR BEING THE ANATOMY VISITOR HERE IN THE -- THE ONTARIO VISITOR IN THE U.S.

I'M HERE BECAUSE OF MY COMMISSIONER, THE REGULATOR, PRIVACY ISSUE COORDINATOR IN ONTARIO AND IT'S NOT BECAUSE YOU ROB FORD.

BUT I'M GOING TO SAY THAT SUE KNOWS PRIVACY IS GOOD FOR HER BUSINESS.

AND SHE ALSO KNOWS ABOUT THE PRIVACY BY DESIGN PRINCIPLES BY IS REALLY TAKING A PROACTIVE SORT OF PRIVACY BY DEFAULT APPROACH TO ANY KIND OF TECHNOLOGY THAT INVOLVES PERSONALLY IDENTIFIABLE INFORMATION.

SO WHEN IS SHE SUPPOSED TO BE STARTING?

SHE WILL BE SMART AND SAVVY AND SAY, GEE, THESE TECHNOLOGIES COLLECT TO PERSONALLY IDENTIFIABLE INFORMATION SO, AS SOON AS SHE CON RECEIVES OF THIS CONCEPT, THIS IDEA, SHE IS GOING TO START THINKING ABOUT HOW CAN I PROTECT THAT DATA WITHOUT THE CONSUMER HAVING TO DO A LOT OF HEAVY LIFTING.

>> WHAT SHOULD THAT PROCESS LOOK LIKE MORE SPECIFICALLY.

DAVID WHAT DO YOU THINK?

>> WELL, I WILL ECHO A LOT OF WHAT MICHELLE SAID.

YOU KNOW, I THINK SHE IS, IN GENERAL TERMS JUST THINKING ABOUT WHAT DATA DO I NEED TO COLLECT, HOW IS IT GOING TO BE

USED AND WHAT THIRD PARTIES IF ANY IS IT GOING TO BE SHARED WITH.

THERE ARE VARIOUS WAYS TO BREAK IT DOWN.

MAYBE SHE THINKS ABOUT FRONT END VERSUS BACK END.

AM I USING ANY SORT OF ANONYMIZATION OR DATA MINIMIZATION TECHNIQUES, WHAT IS THE INTERFACE GOING TO LOOK LIKE, THOSE KINDS OF ISSUES AND MARK WHAT SHOULD SHE BE THINKING ABOUT WITH SECURITY ISSUES FROM THE OUTSIDE.

>> SECURITY HAS TO BE BAKED INTO IT FROM THE VERY BEGINNING.

WHAT I AM FINDING IN BREAKING THINGS IS THAT GENERALLY THEY FALL INTO TWO COUNTS AND THAT IS, THINGS THAT ARE DESIGNED BY PEOPLE WHO ARE AWARE OF THE KINDS OF FLAWS THAT YOU WOULD FIND IN WHICH CASE THEY HAVE A ROBUST DESIGN, ADDRESS MOST OF THE ISSUES AND THEY ARE QUITE FORWARD THINKING IN TERMS OF WHAT ISSUES MIGHT WE ENCOUNTER THAT HAVEN'T CROPPED UP YET COMINGS FROM A DMIRCHT INDUSTRY, A MEDICAL DEVICE MVER WHERE THEY ARE AWARE OF THE ISSUES THAT YOU WOULD ENCOUNTER IN A MEDICAL DEVICE BUT NOT AWARE OF THE ISSUES -- AND THEY MISS THE ISSUES.

UNDERSTANDING THESE ISSUES AND LOOKING TO EXPERTISE AND LOOKING TO BEST PRACTICE IS REALLY IMPORTANT.

ONE OF THE MOST IMPORTANT THINGS ABOUT THE INTERNET OF THINGS IS THAT THERE ARE A LOT OF THINGS ON THE INTERPRET AND MANY OF THE ISSUES THAT WE'RE SEEING HAVE BEEN SOLVED BEFORE.

SO THE LESSONS ARE OUT THERE.

WE JUST NEED TO GUIDE THE COMPANIES TO THE ANSWERS.

>> HOW DOES SHE TURN IN THAT, SAY FOR INSTANCE SHE WANT'S PLEEM YUM MOD AND HE WILL THAT INDICATES AN AD NETWORK.

SHE IS GOING TO WANT TO HAVE AN OUTSIDE CONSULTANT, CONSULT, SECURITY ARCHITECT COME IN WITH THE RIGHT STRUCTURE IN TERMS OF HOW SHE BUILDS HER DESIGNS, HER PRODUCT SO SHE IS NOT LEFT RETRO FITTING IT AFTER THE FACT.

THEN HOW IS THIS PROCESS DIFFERENT SINCE SHE IS MAKING AN INTERCONNECTED DEVICE VERSUS SAY A RECOMMENDATION APP.

>> FIRST OF ALL I WOULD LIKE TO THANK YOU FOR HOLDING THE WORKSHOP AND THANK YOU FOR INVITING KNEE PARTICIPATE.

THIS IS A GOOD EXAMPLE OF -- I MEAN IN THIS INSTANCE, TO SORT OF BEGIN, AS I SAID EARLIER, BUT IN ADDITION TO THAT, TO THINK ABOUT, YOU KNOW, WHAT WE CONNECT TO THE INTERNET AND WHY, SORT OF AS A GENERAL PRINCIPLE, AND THEN THE OTHER GENERAL PRINCIPLE THAT APPLIES HERE IS THERE IS NO SUCH THING AS PERFECT SECURITY.

SHE IS -- YOU KNOW, IN THIS EXAMPLE, WITH INTERNET OF THINGS IT'S A TRANSFORM ACTIVE TECHNOLOGY, REALLY THE FUTURE OF THE INTERNET ITSELF AND SO HER CHALLENGE IS HOW TO PROTECT PRIVACY AND SECURITY AND STILL NABLE INNOVATION IN A PRACTICAL WAY.

I MEAN I THINK THAT BEING SAID THERE ARE A LOT OF GUIDELINES FOR POLITICS THAT SHE CAN FOLLOW AND SHE NEEDS GET AT THE OUTSET.

>> I THINK DREW AND MARK BOTH

RACED THE IDEA SHE MAY BE TECH SAVVY BUT MAY NOT HAVE THE RIGHT EXPERTISE AND THERE WAS A DISCUSSION ABOUT THE FACT SHE SHOULD HIRE A SECURITY EXPERT, SHE MIGHT WANT TO HIRE SOMEBODY WHO KNOWS ABOUT ADD NETWORKS AND THAT SORT THING.

SO I GUESS I WOULD LIKE TO PANEL TO DISCUSS THE MORE ABOUT THE COSTS AND BENEFITS SO ARE WE SAYING THAT IT DEPENDS ON THE SENSITIVITY OF THE DATA AND ALL EVENTS.

SUE CAN'T GET OUT AND PUT UP A SHINGLE AND DO THIS HERSELF. DOES ANYBODY HAVE ANY THOUGHTS ON THAT?

OF I WAS GOING TO SAY FOR THE QUESTIONS ADDRESSING ALL OF THE PANELISTS YOU POLITE WANT TO RACE YOUR NAME TENLT IF WOULD YOU LIKE TO ANSWER.

>> OK.

WE DID IN REALITY WE RECENTLY PAWBLED PAPER FOR A SMART METER APP DEVELOPERS AND WHAT WE FOUND WAS THAT THIS SPACE MUCH LIKE YOU HEARD IT RAISED IN EARLIER PANELS, MUCH OF THIS SPACE, THEY'RE NOT SOPHISTICATED HUGE CORPORATIONS WITH LARGE IT DEPARTMENTS OR EVEN A CHIEF PRIVACY OFFICER, RIGHT?

THEY'RE SMALL, INDEPENDENT MAYBE ONE OR TWO INDIVIDUALS.

SO FOR US, FOR OUR OFFICE, ONE OF THE SORT OF M.O. THAT WE OPERATE ON ARE THE THREE Cs.

WE DO A LOT OF COMMUNICATION, COLLABORATION AND CONSULTATION.

SO WE STARTED TO TARGET THE SMALL AND MEDIUM SIZED ORGANIZATION TO SORT OF PUT OUT SOME ESSENTIAL GUIDANCE FOR APP DEVELOPERS.

SO SOME OF THESE THINGS WERE THINGS LIKE YOU KNOW, DON'T -- IF YOU DON'T NEED THE DATA THEN DON'T COLLECT IT SO WE CALL THAT DATA MINIMIZATION.

RIGHT?

IS THERE A WAY TO ANONYMIZE THE DATA?

GIVE THE INDIVIDUAL THE CHOICE IN TERMS OF WHETHER TO HAVE THE GPS FEATURE ON OR OFF.

RETAIN AS MUCH OF THE DATA ON THE DEVICE AS POSSIBLE IN TERMS OF CONTROL.

DON'T USE A SINGLE ID AS A DEFAULT.

IF YOU CAN STOP IT FROM BEING PERSISTENT, BEING MUCH MORE DYNAMIC AND IT'S THESE SMALLENINGS THAT WILL HELP THESE INDIVIDUALS.

THERE ARE A LOT OF RESOURCES OUT THERE AS WELL IN TERMS OF WHAT WE CALL A PRIVACY IMPACT ASSESSMENT.

THERE ARE SIMPLE BASIC QUESTIONS THAT ARE DEVELOPER OR OWNER OR AN ORGANIZATION CAN ASK THEMSELVES AND GO THROUGH A SERIES OF QUESTIONS.

THEY CAN ALSO GET COMPANIES TO DO A THREATALISTIC ASSESSMENT. THAT'S MUCH MORE ON THE SECURITY SIDE THAT MARK AND DAVID AND DREW COULD PROBABLY TALK ABOUT.

>> I THINK RYAN AND THEN TAN AND MARK.

>> YEAH.

THANKS SO MUCH FOR HAVING ME, HAVING TWO PEOPLE FROM THE UNIVERSITY OF WASHINGTON IN SUCCESSIVE PANELS.

WE APPRECIATE FOR THE WASHINGTON EXPERTISE AND SO FORTH AND I'M HAPPY TO BE AMONG SO MANY INTERESTING AND GREAT PANELS.

SOMEHOW JOE HALL WAS ABLE TO FAVORITE ONE OF MY TWEETS WHILE HE WAS OWN THE PANEL WHICH I THOUGHT IT WAS PARTICULARLY AMAZING.

I DIDN'T EVEN SEE YOU DO IT.

SO I WOULD SAY THAT WE WOULD WANT TO START EVEN EARLIER.

I'M GOING TO OUT PRIVACY BY DESIGN AND SO I THINK THE PLACE TOO START THINKING PRIVACY IS WHEN YOU THINK ABOUT YOUR BUSINESS MODEL.

I SPENT TIME IN CHINA A COUPLE YEARS AGO, ON BEHALF OF A DELEGATION FOR STANFORD LAW SCHOOL AND I DID NEW SPIEL ABOUT PRIVACY AND THERE'S A CONFLICT BETWEEN INNOVATION AND PEOPLE'S PRIVACY AND I GOT A LOT OF BLANK LOOKS AND I DON'T THINK IT WAS A VERY GOOD TRANSLATORRER.

SO WHEN I TALKED TO FOLKS ABOUT IT FROM INDUSTRY, THEY WERE LIKE, LOOK, WE DON'T REALLY FACE THIS PROBLEM IN THIS WAY.

I SAID WHAT DO YOU MEAN YOU DON'T FACE THE PROBLEM?

THEY SAID WELL ALL OF OUR STUFF IS FEE BASE SOD WE DON'T TRY TO MONETIZE PEOPLE'S DATA IN WAYS THAT THEY WOULDN'T ANTICIPATE. NOW CHINA HAS OTHER PROBLEMS. RIGHT.

BUT AT LEAST OF THE COMPANIES I SPOKE TO DIDN'T PERCEIVE THAT ESSENTIAL CONFLICT.

SO WHAT SUE SHOULD BE ASKING HERSELF IS WHAT AM I DOING?

WHAT AM I SELLING?

SOMETHING THAT JUST JOIN US A BUNCH OF DEVICES TOGETHER AND CUSTOMERS PAY ME MONEY AND I SERVE THE CUSTOMER THIS WAY? OR AM I BUILDING A DATA ENGINE THAT CLEVER PEOPLE CAN LATER

MONETIZE BECAUSE THAT IS GOING TO DRIVE SO MUCH ELSE IN TERMS OF THE DECISION IN THE CLIENT AND THE CLOUD, WHO TO BRING IN AND WHEN AND I WANT TO ARGUE THAT THE LIFE CYCLE STARTS AT YOUR BILLS PLAN!

DAN?

>> I JUST WANTED TO ADD A QUICK POINT.

I MEAN RELATED TO SECURITY OR SUE'S PROBLEM IS THAT, YOU KNOW, THAT THERE'S SO MUCH INNOVATION AND IT'S LOW COST.

I MEAN MICHELLE MENTIONED SOME OF THE WAYS THAT YOU CAN -- THAT SUE COULD SECURE THE DATA AND THAT REASONABLE DATA SECURITY DOESN'T NEED TO BREAK THE BANK. WE HAVE TALKED ALL DAY ABOUT CONTEXT AND I THINK CONTEXT IS IMPORTANT.

AND I AGREE WITH RYAN, SHE NEEDS TO THINK OF IT AT THE INEXCEPTION BAKE IT IN BUT THERE ARE CERTAINLY SCHOOLS TECHNOLOGIES THAT SHE SHOULD KEEP IN MIND THAT, IMLEUN, MAY NOT COST AN ARM IN A LEG.

>> MARK AND DREW AND THEN WE CAN MOVE ON.

>> I THINK IT'S IMPORTANT TO KNOW THAT THERE'S TWO OTHER THINGS DRIVING THIS, AND THAT'S -- INVASION ISN'T JUST IN THE PRODUCT SPACE.

THERE'S INVASION IN THE TAX BASE AS WELL.

THE THREAT LANDSCAPE MOVES VERY QUICKLY.

AND WHEN WE EXACT THINGS, WE FUNDAMENTAL MY CHANGE THEIR VALUE TO SOME OF THESE AGUESS SOURCE.

TAKE FOR EXAMPLE A THERMOSTAT ON THE WALL, HAS VERY LITTLE VALUE.

THE ONLY SECURITY YOU CAN THINK ABOUT IS PHYSICAL TO MAKE SURE YOUR KID DOESN'T TURN OFF THE TEMPERATURE IN YOUR HOUSE. BUT ON THE OTHER HAND, A CONNECTED THERMOSTAT IS SOMETHING THAT -- IT'S A DEVICE YOU CAN PROVIDE INTEL ABOUT SOMEWHAT GOING ON INSIDE YOUR HOUSE, WHEN YOUR HOUSE EMPTY, AND IF HARNESSD INTO A LARGE COMMUNITY OF THINGS CAN EVEN BE USED AS WEAPON TO ATTACK POTENTIAL INFRASTRUCTURE.

10 IT'S A FULL-TIME JOB TO REALLY KEEP ON TOP OF ALL OF THIS STUFF, AND SO FOR A SMALL COMPANY IT MAY BE MUCH MORE ECONOMIC TO TURN TO AN EXPERT IN THE FIELD, A SECURITY COMPANY, TO PROVIDE THEM WITH GUIDANCE, EXPERTISE, AND ASSESSMENTS TO ENSURE THAT THEY'RE DOING THE RIGHT THING.

HOWEVER THERE SHOULD BE SOMEONE IN THE ORGANIZATION WHO IS RESPONSIBLE FOR ENSURING THAT THAT HAPPENS AND THEY LOOK AFTER THE BUSINESS SIDE OF IT.

>> I THINK THAT THE BIGGEST ISSUE IS EDUCATION.

SO TO DATE WE HAVE EXTREMELY INNOVATIVE, BRIGHT, SOPHISTICATED DOLOGISTS BUT WHEN IT COMES TO THE REGULATORY REGIME THEY'RE DEVELOPING TECHNOLOGY THEY'RE NOT NECESSARILY UP TO SPEED.

THEY DON'T KNOW WHAT THE RAMIFICATIONS ARE, AND THEIR WHOLE IDEA TO BUILD IT NOW, COLLECT AS MUCH DATA AS POSSIBLE, AND THEN WORRY ABOUT THOSE ISSUES LATER.

BUT FORTUNATELY I THINK WE'RE SEEING A LOT OF START UP

INCUBATORS PROVIDE EDUCATION,
YOU KNOW, THEY'RE HAVING SORTS
OF FOLKS SPEND THEIR TIME,
ATTORNEYS PRIVACY SECURITY
EXPERTS COME IN AND EDUCATE
THESE FOLKS EARLY ON SO THEY'RE
NOT LEFT AFTER THE FACT WORRYING
ABOUT HOW TO, YOU KNOW, FIX THE
SOLUTION, YOU KNOW, POST HOC.

>> SO ANOTHER QUESTION FOR YOU.
SUE SETS UP HER SYSTEM AND IS
FRIGHT DECIDE WHICH SYSTEM IN
HER HOME TO MAKE COMPATIBLE WITH
THE SYSTEM.

HOW MUCH SHOULD SHE KNOW ABOUT
THESE DEVICES AND THEIR DATA
COLLECTION AND SECURITY AND HOW
SHOULD SHE GO ABOUT FIGURING
THAT OUT.

>> FIRST AND FOREMOST SHE NEEDS
TO KNOW WHAT PLATFORMS ARE THEY
RUNNING ON, WHAT DEVICES ARE
THEY INTENDED TO INTEGRATE OR
RESIDE ON.

SHE NEEDS TO KNOW WHAT MARKET
SHE WANTS TO MARKET HER SOLUTION
FOR, IS IT STRICTLY FOR THE U.S.
OR DOES SHE EVENT BY WANT TO
SCALE AND GO INTERNATIONAL.
SHE NEEDS TO KNOW ARE THESE
DEVICES UTILIZING iOS, ARE
THEY UTILIZING ANDROID, ARE THEY
BUILDING HTML5?

SHE NEEDS TO KNOW WHAT USER
EXPERIENCE, USER INTERFACE SHE
WANTS TO ESSENTIALLY OFFER TO
HER CUSTOMERS AND SHE NEEDS TO
KNOW ARE THEY UTILIZING OPEN
SOURCE OR PRIVATE API, HOWRY 245
SECURING THAT DATA, WHAT CALLS
ARE THEY LEVERAGING DO THEY HAVE
PRIVACY POLICY KNOWS PLACE, ARE
THEY ACCURATE, DO THEY ACTUALLY
REFLECT THE POLICIES THAT ARE
BEING INSTITUTED THROUGH THE
APPLICATION?

SHE NEEDS TO KNOW WHETHER OR NOT THOSE APPLICATIONS ARE COLLECTING SENSITIVE INFORMATION, IF ANY OF THE INFORMATION IS HEALTH-RELATED, IS HIPAA INVOLVED, ARE BY IN OF THE DEVICES SHE IS THINKING ABOUT CONNECTING TO MEDICAL DEVICES, BECAUSE BY VIRTUE OF HER CONNECTING TO AN EXISTING MEDICAL DEVICE SHE THEN BECOMES SUBJECT UNDER WHAT THE LATINO FDA GUIDANCE PROPOSED IN THE FINAL GUIDANCE AS MOBILE APPLICATIONS SO THERE ARE CERTAIN RAMIFICATIONS IN THAT AREA SO SHE NEEDS TO DO HER DUE DILIGENCE OWN THE APPLICATIONS AND DEVICES THAT SHE WANTS TO CONNECT TO AND IT THEN CREATES A WEAK TRAIN IN HER OWN INFER.

>> YOU ARE ANOTHER QUESTION FOR DAN.

SUE DECIDES THE COST OF SECURING THE DATA SUBMITTED BUT HER PRODUCT EXCEEDS HER BUDGET SO WHAT DOES SHE DO?
WHAT ARE OPTIONS?

>> I WAS TRYING TO GET AT THAT EARLIER.

I THINK SHE LOOKS FOR RESOURCES, AS I SAID THAT ARE ONLINE OR EXISTING BEST PRACTICES FLAT CONSIDERED INNOVATIVE AND SECURITY CAN BE VERY, VERY EXPENSIVE.

YOU CAN SUSPEND LOT ON IT DEPENDING ON YOUR CON TEXT AWARENESS BUT IT DOESN'T NECESSARILY HAVE TO BREAK.BANK OR BREAK THE BUSINESS MODEL. SO SHE STILL HAS TO FIGURE OUT A WAY EVEN IF SHE IS OVERBUDGET, SHE HAS TO FIGURE OUT A WAY TO SECURE IT AND I THINK THERE ARE RESOURCES AVAILABLE THAT SHE

COULD TAKE ADVANTAGE OF.

>> MICHELLE?

>> I CAN TELL YOU THAT OUR COMMISSIONER IS CO-CHAIRING A TECHNICAL COMMITTEE UNDER OWE AITZS, AND -- UNDER OASIS AND THE SOLE PURPOSE IS TO LOOK AT WAYS TO TRANSLATE THE PRIVACY BY DESIGN PRINCIPLES INTO TECHNICAL REQUIREMENTS BUT MORE THAN -- REQUIREMENTS BUT MORE THAN THAT IT'S LOOKING AT WHAT KIND OF DOCUMENTATION CAN SOFTWARE ENGINEERS, WHAT SHOULD THE STANDARD BE FOR THAT DOCUMENTATION TO DO EXACTLY THAT, TO BE ABLE TO DOCUMENT AND IF THEY HAVE A BREACH TO BE ABLE TO GO IN FRONT OF A REGULATOR AND SAY, YES, WE MADE THIS BUSINESS DECISION FOR THIS REASON AND TO TAKE THAT ACCOUNTABILITY.

SO THAT'S WHAT I WOULD SUGGEST SUE WOULD HAVE TO DO.

SHE HAD BETTER MAKE A GOOD BUSINESS CASE AS TO WHY SHE MADE THAT TRADEOFF.

>> AND MARK?

>> I JUST WANTED TO FOLLOW UP TO SAY, I STRUGGLE TO SEE HOW THAT ELEMENT OF SECURITY WOULD END UP COSTING A LOT OF MONEY.

I THINK IF IT'S DESIGNED RIGHT IT DOESN'T HAVE TO COST A LOT OF MONEY.

THERE ARE PLENTY OF OPEN STANDARDS OUT THERE THAT CAN BE ADOPTED THAT WILL ALLOW THIS TO WORK WELL AND THAT ULTIMATELY THE COST OF NOT DOING IT RIGHT COULD END UP BEING FAR MORE SERIOUS TO THE BUSINESS WHEN SHE HAS A BREACH OR WHEN SHE ENDS UP WITH A MASSIVE LOSS OF CUSTOMER CONFIDENCE BECAUSE CUSTOMER DATA

IS OUT OF THE WIND.

>> ACTUALLY I THINK THAT LEADS TO A FOLLOW-UP QUESTION WHICH IS SOMETHING ALLUDED TO IN EARLIER PANELS ABOUT INCENTIVES.

AS SUE WAS CREATING HER PRODUCT SHE IS LOOKING AT SELLING IT TO THE PUBLIC AND WANTS TO SHOW THEM IT CAN DO ALL OF THE NIFTY THINGS SHE SAYS IT CAN DO AND I THINK AS PEOPLE SAID BEFORE CONSUMERS DON'T REALLY HAVE A WINDOW INTO SECURITY.

THEY DON'T -- SECURITY IS NOT ONE OF THE BASIS ON WHICH THEY MAY BUY A PRODUCT.

SO YOU KNOW, HOW DO WE GET THE INCENTIVES RIGHT AND MAKE SURE THAT SUE HAS THE INCENTIVES TO BAKE SECURITY INTO HEIR PRODUCT EVEN THOUGH CONSUMERS AREN'T NECESSARILY CLAMBERING FOR IT?

>> GO AHEAD.

>> I DON'T EVEN KNOW IF I HAVE TO DO THIS.

>> TALK NOW EVERYBODY.

I'M TALKING RIGHT NOW.

I THINK WE'RE OVERSTATING A LITTLE BIT THE RISK TO SUE.

I DON'T WANT NOT YOUR ATTORNEY AND IF YOU'RE A START UP DON'T SITE WHAT I SAID BUT I'M NOT EVEN LICENSED TO PRACTICE.

ACTUALLY I AM.

I AM BARRED IN DC BUT I'M NOT YOUR LAWYER.

SUE DOESN'T HAVE TO WORRY ABOUT THIS YET.

IF YOU LOOK AT THE FTC ENFORCEMENT PATTERN IT'S VERY CLEAR THAT THE FTC WAITS FOR A WHILE UNTIL YOU HAVE A LOT OF CUSTOMERS BEFORE IT STARTS KICK OF TIRES ON YOUR SECURITY AND PROPERLY SO.

SO IF YOU LOOK AT THE RIGHTS

AROUND SECURITY, NOT EVERY ONE BUT THEY HAVE GROWN TO A SIZE WHERE THE FTC SAYS SHAME ON YOU FOR HAVING THIS MANY PEOPLE AND NOT DOING IT.

BUT I THINK IF YOU GET THOSE STRUCTURES IN PLACE EARLY, IF YOU THINK ABOUT YOUR BUSINESS MODEL, YOU WILL BE WELL POSITIONED TO EFFICIENTLY MOVE TO A PROPORTIONATE SECURITY AMOUNT WHEN IT COMES TIME TO IT. AND JUST IN A RELATED ANSWER TO YOUR QUESTION ABOUT WHAT DO WE DO ABOUT CONSUMERS AND SECURITY, SECURITY IS SOMETHING THE FTC IS DOING A GOOD JOB ON.

TO YOU DON'T HAVE ADEQUATE SECURITY, IRRESPECTIVE WHETHER YOU REPRESENT IN A WAY, RIGHT, THE FTC AT ONE POINT IS GOING TO HAVE SCRUTINY AGAINST YOU AND THAT'S SOMETHING I THINK WE DO REALLY WELL.

THAT'S JUST MY OWN.

>> DAVID AND THEN EXPHARK MICHELLE.

WE CAN MOVE ON TO THE NEXT SCENARIO HAVE ANY ALSO THINK THAT FTC ENFORCEMENT AND ENFORCEMENT BY THE STATE AG'S IS ALSO A GREAT INCENTIVIZER AND YOU KNOW, IT'S NOT JUST BIG COMPANIES THAT THE FTC LOOKS AT. I THINK REALLY SMALL COMPANIES THAT ARE DOING EGREGIOUS -- ENGAGED IN EGREGIOUS MISCONDUCT, I DON'T THINK SIOUX FALLS INTO THESE BUT THAT'S ANOTHER CASE.

>> I DON'T THINK FEAR OF REGULATION SHOULD BE THE INCENTIVE.

THERE ARE SOME PRETTY GOOD EXAMPLES OUT THERE OF WHAT HAPPENS TO COMPANIES WHEN SECURITY BECOMES AN AFTERTHOUGHT

AND THE COST OF THE COMPANIES CAN INCUR IN TRYING TO FIGHT THE DAMAGE, THE COST TO BROADBAND, REPUTATION, THE LOSS OF CUSTOMER CONFIDENCE, AND THERE ARE ALSO GREAT EXAMPLES OF COMPANIES EVEN IF THE INTERNET OF THINGS, AS NEW AS IT IS, OF COMPANIES THAT HAVE GOT IT RIGHT AND HAVE DONE WELL AND GONE ON TO PUSH OUT PRODUCTS WHERE THERE HAVE BEEN NO ISSUES.

THOSE COMPANIES ARE ONLY GOING TO DO BETTER THAN NEVER THE COMPANIES THAT FAIL TO DELIVER WHAT THE CONSUMERS WANT BECAUSE CONSUMERS ARE VERY WELL AS BUDGING WITH THEIR FEET AND THAT'S MORE IMPORTANT TO A COMPANY THAN A FINE A REGULATOR CAN DRAW.

>> MICHELLE?

>> IT'S ALONG THE SAME LINE.

THRCHE'S A SURVEY RECENTLY THAT SAID I ALWAYS TALKED ABOUT GOVERNMENTS AND INDIVIDUALS ARE REQUIRED TO GIVE YOUR PERM DATA TO GOVERNMENTS AND GOVERNMENTS TEND TO BE MORE CONSERVATIVE IN TERMS OF THEIR APPROACH AS COINS.

BUT -- CUSTODIANS BUT THEY SAID 89 PERCENT OF BUSINESS LESS GO TO ANOTHER BUSINESS RIGHT AWAY IF THEY DO NOT FEEL COMFORTABLE OR HAVE ANY TRUST IN THAT COMPANY'S ABILITY TO PROTECT THEIR DATA: THE OTHER IS THE ACKNOWLEDGE CITIZEN UNDERSTANDS ID THEFT THESE DAYS, WHERE ONLINE BANKING HAD BEEN HACKED OR WHATEVER.

AND THE AVERAGE CITIZEN WILL KNOW ABOUT SECURITY.

SO WHAT WE SAY TO BUSINESSES IS USE THAT AS YOUR COMPETATIVE

ADVANTAGE, WHETHER IT'S YOUR SECURITY POLICY OR YOUR PRIVACY STANCE, USE IT AS A COVE ADVANTAGE, GET OUT THERE AS A LEADER OF THE EXPAK DO THAT.

>> LET ME ASK ONE LAST QUESTION AS A SCENARIO.

AND BINET LEWDED TO THIS.

LET'S SAY YOU'RE ADVISING SUE ON BUILDING A DATA AND PRIVACY SECURITY.

IS YOUR ADVICE TO SUE DIFFERENT FROM THAT OF A COMPANY CREATING A RESTAURANT APP OR WEATHER APP OR WHAT ABOUT THE CONNECTEDNESS MAKES THIS UNIQUE?

>> I THINK THE CONNECTEDNESS CHANGES THINGS THAT NEED TO BE LOOKED AT.

SECURITY NEEDS TO BE LOOK AT.

OBVIOUSLY THE MORE INTIMATE THE APPLICATION THE GREATER IMPACT IT CAN HAVE AN A CONSUMER SO MAYBE THE CONSUMER NEEDS TO BE THERE.

ONE OF OTHER THINGS PEOPLE SOMETIMES NEGLECT TO TAKE INTO ACCOUNT IS THAT THERE CAN BE UNFORESEEN EFFECTS FROM THINGS AND A GOOD EXAMPLE I THINK IS THE IP CONNECTED LIGHTBULB.

YOU KNOW, PEOPLE STATED EARLIER IN THIS CONFERENCE THAT PERHAPS THE ONLY CONCERNS PEOPLE SHOULD BE CONCERNED ABOUT WITH AN IP CONNECTED LIGHTBULB IS THAT YOU MAY BE THE VICTIM OF A DRIVE BY ATTACK WHERE SOMEONE COMES BY AND TURNS YOUR LIGHTS ON OR OFF BUT I WOULD ARGUE THERE ARE OTHER POTENTIAL EFFECTS THAT COULD TAKE PLACE THAT -- AND I THOUGHT ABOUT LIKE FOR EXAMPLE WHAT IF THE LIGHTBULB GETS USED WITH MILLIONS OF OTHER LIGHT BULBS TO ATTACK SOMETHING ELSE?

SO DON'T UNDERESTIMATE WHAT
COULD BE DONE WITH YOUR APP NO
MATTER HOW SIMPLE YOU THINK IT
IS.

SECURITY SHOULD BE TAKEN
SERIOUSLY RIGHT FROM THE GIT-GO.

>> THANK YOU.

>> WHY DON'T WE MOVE ON TO THE
NEXT SCENARIO, AND BEEN WILL PUT
THAT UP ON THE SCREEN.

HERE IS THE SCENARIO.

NOW WE HAVE JANE.

SHE WANTS TO START TRAINING FOR
A MAYOR DISMON LEARNS ABOUT A
NEW WATCH THAT CAN AUTOMATE HER
TRAINING.

.WATCH CAN CONNECT TO JANE'S
ONLINE CALENDAR FOR TIMES FOR
RINS, CALIBRATE OPTIMAL TIME
BASED ON HEART RATE AND ROUTE
BASED ON OTHER PAT ANDERSON A
COURSE TO SIMULATE THE COURSE
SHE IS GOING TO RUN.

AND THE WATCH CONTAINS FEATURES
LIKE POSTING HER PROGRESS ON
SOCIAL NETWORK, HELPING JANE
FIND OTHER PEOPLE TO RUN WITH
AND EVEN OFFERING DISCOUNTS ON
MEDICAL INSURANCE BASED ON HER
IMPROVED HEALTH.

THE WATCH IS ADVERTISED AS A
CONNECTED WATCH TO HELP YOU
TRAIN FOR A MARATHON.

THE PACKAGE INSERT CONTAINS
FUNCTIONALITY INFORMATION AND
THE TERMS AND CONDITIONS SAY
NOTHING SPECIFICALLY ABOUT DATA
COLLECTION AND SHARING.

SO LET'S TAKE THE SIMPLE
SCENARIO, WHERE IT'S JUST A ONE
TO ONE SHARING.

SO JANE IS USING THE WATCH.
IT TRANSMITS DATA BACK TO THE
MANUFACTURERS.

AND IT HELPS HER IMPROVE HER
RUNNING TIME AND RUN COURSES AND

SO FORTH.

SO THE QUESTION -- THE FIRST QUESTION IS: DOES THE ADVERTISEMENT, THIS IS A CONNECTED WATCH TO HELP YOU TRAIN FOR A MARATHON, DOES THAT ADVERTISEMENT BUT BRAIN AND ON NOTICE AS TO WHETHER THE WATCH MANUFACTURER WILL OBTAIN HER PERSONAL INFORMATION.

WHY DON'T WE START WITH RYAN?

>> SO IT'S A TRUISM ABOUT AMERICAN PRIVACY LAW THAT A LOT OF IT HAS TO DO WITH NOTICE AND CHOICE.

EVERYBODY IN THE ROOM UNDERSTANDS THAT.

WHAT I LIKE TO SAY ABOUT NOTICE AS A REGULATORY MECHANISM IS WHAT WINSTON CHURCHILL SAID ABOUT DEMOCRACY, IT'S THE BEST EXCEPT FOR THE KNOWN ALTERNATIVES.

I THOUGHT I WOULD GET MORE OF A LAUGH WITH THAT.

>> I'M FEELING THROUGH.

>> DAN IS FEELING ME AND I'M SO GLAD TO HAVE THIS ENERGY NEXT TOW ME.

[LAUGHTER]

SO THINK ABOUT THIS.

THINK ABOUT THE FACT THAT THERE ARE PEOPLE IN THIS ROOM, AT LEAST ONE, I KNOW FOR A FACT, HAS A DEVICE THAT WE LEARNED EARLIER ALLOWS A BLIND PERSON ARE WHO SPEAKS ENGLISH TO COMMUNICATE WITH A GERMAN SPETTING PERSON, OK.

THAT'S THE STATE OF THE TECHNOLOGY THAT WE'RE DEALING WITH TODAY AND YESTERDAY WE'RE USING GUTENBERG ERA COMMUNICATION FOR PRIVACY POLICIES.

THAT DISCONNECT IS SO PROFOUND

THAT IT HAS LED TO AN AVALANCHE
OF COMMENTARY AND EVERYBODY
KNOWS NO ONE READS PRIVACY
POLICIES OR ETC.

TO WE ABANDON NOTICE OF THE BEST
WORST THING?

WE DON'T.

I THINK WE NEED TO INNOVATE.

DRAG NOTICE INTO THE 21st
CENTURY FINALLY AND I THINK THAT
THE INTERNET OF THINGS IS A
FORCING MECHANISM BECAUSE IT
DOESN'T HAVE THAT SCREEN THAT
CAN SORT OF ALLOW YOU TO
LAZYILLY LAY OUT WHAT CALIFORNIA
LAW REQUIRES YOU TO DO ABOUT
WHAT YOU'RE COLLECTING AND SO
FORTH SO IDEAS INCLUDE HAVING
STANDARDIZATION SO JANE'S DEVICE
PERMITS YOU TO UNDERSTAND NOT
ONLY WHAT DATA IS COLLECTED BUT
HOW IT'S SHARED.

I CAN GET INTO EXAMPLES OF HOW
WE MIGHT DO NOTICE BETTER AND IF
YOU'RE INTERESTED I HAVE AN
ARTICLE ABOUT THIS.

SO I DO THINK THERE'S A ROLE FOR
THE VERY EXPERIENCE OF THE WATCH
TO PUT YOU ON NOTICE OF
SOMETHING.

I THINK THAT IS APPROPRIATE AND
I THINK MAYBE THAT'S WHAT
HAPPENED HERE BUT I WOULDN'T
JUST LIMIT TO IT THAT.

I THINK THERE'S A CHANCE TO DO
NOTICE RIGHT AND WELL.

FACEBOOK ORGANIZES A LOT OF
INFORMATION FOR A LIVING.
THAT'S WHAT THEY DO FOR A
LIVING.

LIKE, WE NEED TO INNOVATE
AROUND PRIVACY NOTICES THE WAY
THAT WE DO AROUND THE OTHER
PRODUCTS.

RYAN, WE STARTED WITH THE SIMPLE
SCENARIO WHERE IT'S JUST THE 100

TO 21 BETWEEN THE CONSUMER AND THE MANUFACTURER.

AND I THINK YOU ALLUDED TO THE FACT THAT THE WATCH IS NUMBER NOR THAT ONE TO ONE VALUE PROPOSITION.

LET'S COMPLICATE THE SITUATION AND SAY THE WATCH MANUFACTURER STARTS SELLING YOUR DATA FOR ADVERTISEMENT PURPOSES.

AND IT MAY NOT BE THE BEST APPROACH FOR PUTTING THAT DISCLOSURE IN.

WE KNOW FROT FUTURE OF THE PRIVACY FORUM MAIN AND A LOT OF WHAT IS DISCUSSED HERE IS THE WATCH HAS TOO SMALL HALF SCREEN TO BE ABLE TO PROVIDE THAT DISCHORE.

SO WHAT SHOULD WE DO IN THE CASE WHERE THE WATCH MANUFACTURER SAYS YOU CAN TAKE THIS WATCH FOR FREE AND I'M GOING TO SELL YOUR DATA TO A THIRD PARTY ADVERTISERS?

HOW DOES THAT GET COMMUNICATED TO CONSUMERS?

IS THAT SOMETHING THAT IS EVEN APPROPRIATE?

HOW SHOULD SOMEBODY GABT DOING THAT?

>> I WILL QUICKLY RESPOND TO THAT.

>> I DO HAVE AN ANSWER.

I JUST HAVE SORT OF A FRENETIC WAY OF TALKING ABOUT IT.

BASICALLY IF YOU THINK ABOUT THE THING THAT REALLY BOTHERS OF THE PRIVACY COMMUNITY, YOU CAN SEE THIS FOR INSTANCE IN EPIC'S COMMENTS ABOUT THE INTERNET OF THINGS.

RIGHT, IT'S WHEN YOU DO THIS BAIT-AND-SWITCH.

WHEN YOU SAY I'M GOING TO SELL YOU ON STAR AND ON STAR HAD HELP

YOU WHEN YOU'RE IN TROUBLE AND
TELL YOU WHERE TO GO AND RESCUE
YOU.

AND ALL OF A SUDDEN SOMEBODY
SAYS THAT'S A LOT OF INTERESTING
DATA, WE COULDMON FIEZ THAT
DATA.

AND YOU'RE NOT REALLY GIVING THE
CONSUMER THE GIST OF THE
TRANSACTION, I SELL YOU THIS
THING FOR A MONEY.

AND YOU SAY THIS WRISTWATCH,
WE'RE GOING TO USE TO IT
ADVERTISE, THEN FINE.

THAT DOESN'T CREATE A ESSENTIAL
PROBLEM.

I DON'T SEE WHY CONSUMERS
SHOULDN'T BE SMART ENOUGH TO DO
THAT.

MAYBE YOU NOT TO DO AN UP AT A
TIME AND THE THING BLANKS AND
YOU GO AND WREELZ YOU HAVE A
MESSAGE AND GO IN THE CONCEAL
AND SEE WHAT IT MIGHT BE.

CREATIVE THINKING ABOUT THAT.

>> AND ACTUALLY I WANTED TO TURN
TO MICHELLE ALSO BECAUSE I KNOW
IN CANADA THE LAW PROSE SOMEWHAT
DIFFERENT IN TERMS OF THERE'S
REQUIREMENTS FOR PRIVACY
POLICIES AND CHOICE.

10 MAYBE YOU WOULD ANSWER THE
FIRST QUESTION DIFFERENTLY, IF
IT'S A ONE TO ONE RELATIONSHIP
WHERE THE MANUFACTURER IS
GETTING THE ATTEMPT AND USING IT
TO DO FIRST PARTY MARKETING BACK
TO THE CONSUMER, HOW WOULD
YOU -- HOW WOULD YOU THINK
NOTICE OR CHOICES SHOULD BE
MADE.

>> SEE, WE GO FOR CONTROL, THE
INDIVIDUAL CONTROL OF THE DATA.
SO IN CANADA, IT WOULD BE, YOU
KNOW, IF THE INDIVIDUAL
UNDERSTANDS, RIGHT, AND BUYS THE

WATCH AND UNDERSTANDS THAT, YOU KNOW, THE MANUFACTURER HAS TO SELECT A CERTAIN AMOUNT OF PERSONAL INFORMATION THEN THAT'S FINE.

HE OR SHE HAS A CHOICE WHETHER OR NOT THEY WANT TO ENGAGE. WHAT WE WOULD LIKE THOUGH HOWEVER IS TO SAY THAT IF THERE ARE ANY, I GUESS, FEATURES BUILT INTO THE WATCH THAT WOULD PERHAPS ENABLE THE COMMUNICATION THAT, IN FACT, IT SHOULDN'T BE THE DEFAULT IS ON.

THAT THE DEFAULT SHOULD BE OFF, TO ENABLE INDIVIDUAL THE CHOICE TO OPT IN.

RIGHT?

>> MARK?

I JUST WANTED TO SAY THIS IS A SCENARIO WHERE WE ALREADY ARE ROLLING INTO DIFFICULTIES.

IF I LOOK AT THE MOBILE ADVERTISERS AND THE KIND OF DATA THEY COLLECT, IT'S VERY, VARIED AND INTRUSIVE.

WHAT WE FOUND AS AN ORGANIZATION IS THAT THERE IS A LACK OF A CODE OF CONDUCT TO TELL THEM WHAT THEY SHOULD DO AND SO WE HAVE BEEN WORKING QUITE HEAVILY TO PUSH OUT GROUND RULES AND SAY TO ADVERTISERS IT'S OK TO COLLECT THIS KIND OF INFORMATION BUT NOT OK TO COLLECT THIS KIND OF INFORMATION AND I THINK THAT HELPS SO THEY NEED TO BE A PART OF THE INTERNET MUCH THINGS AS WELL AND I THINK OPT IN IS IMPORTANT.

I COME FROM THE UK IS OPT IN IS AN IMPORTANT WAY OF THE WAY THE UK HANDLES DATA COLLECTION. AND THE OTHER THING IS TO MAKE SURE THAT THE CONSUMER UNDERSTANDS WHAT IS BEING

COLLECTED.

ANOTHER ANOTHER THING TO SAFE
THAT WE'RE DIRECTING YOUR ARE
BIRTH DATE AND YOUR TELEPHONE
NUMBER.

YOU HAVE TO BE VERY CLEAR SO
THEY CAN UNDERSTAND WHAT THE
IMPLICATIONS OF THAT BEING
SHARED ARE.

>> WE KEEP USING THE TERM NOTICE
OF CHOICE.

I THINK THAT IS SLIGHTLY
OUTDATED.

WE TALKED ABOUT SIMPLIFIED
CHOICE AND JUST IN TIME CHOICES
AND I'M HEARING THAT YOU KNOW
EVEN THAT IS COMPLICATED WHEN
YOU KNOW DON'T HAVE A SCREEN OR
YOU HAVE A SMALL SCREEN.

SO WE GOT A QUESTION FROM THE
AUDIENCE S THERE A ROLE FOR
PRIVACY SECURITY SEALS FOR IOT
DEVICES?

AND THE QUESTIONER ADDS, THE
PROPOSED EU DATA OF --
CONSTITUTES THIS SEALS IN A BIG
WAY.

SO THERE S. THERE A ROLE FOR
THIS AND IS IT RIPE FOR THIS
INNOVATION OR SELF REGULATION?

>> WELL, I CAN ANSWER FROM THE
SMART METER, SMART GRID POINT OF
VIEW AND IT IS SOMETHING THAT
THE INDUSTRY AS WELL AS THE
UTILITIES REALLY CALLED FOR.
YOU KNOW, ORGANIZATIONS ARE
LOOKING FOR A MEANS TO HAVE SOME
SORT OF A FILTERING PROCESS,
SOME SORT OF AN ACKNOWLEDGMENT
OF PRIVACY PRACTICES SO
DEFINITELY.

IN EUROPE, THEY HAVE THE
PARTICULAR SEAL AND I THINK
THERE'S ONE THROUGH THE TRUSTEE
FOR SMART METER ORGANIZATIONS.

>> DREW?

>> I THINK IT'S VERY IMPORTANT TO THE CONSUMER AND EVEN TO CERTAIN PROFESSIONALS THAT THEY HAVE A LEVEL OF CREDIBILITY AND TRUSTWORTHINESS IN THE TYPES OF APPLICATIONS AND DEVICES THAT THEY'RE UTILIZING AND I THINK OFTENTIMES WE ASSOCIATE HIGH RATINGS AND HIGH REVIEWS AND HIGH USER ADOPTION WITH TRUSTWORTHINESS OR CREDIBILITY AND I THINK THERE'S A DIFFERENCE BETWEEN USER EXPERIENCE AND HOW SUSCEPTIBLE SOMEONE IS TO ADHERE TO ANY PARTICULAR APP TO A CORRELATION IN TERMS OF HOW THAT APP OR HOW THAT APP PUBLISHER, DEVELOPER IS HANDLING THE INFORMATION THAT THEY'RE COLLECTING, STORING, FRANCHISING AND SHARING, HOW MUCH NOTICE ARE THEY GIVING TO THE USER, HOW MUCH ACCESS TO THE USER'S INFORMATION ARE THEY GIVING TO THE USER, THINGS OF THAT NATURE AND I THINK THERE NEEDS TO BE SOME SORT OF BAR SO TO SPEAK WHEN IT COMES TO THE APPLICATIONS AND I THINK THE SEAL IS APPROPRIATE. THAT WAS SOCIALLY THE IMPETUS FOR MY COUNTRY'S CERTIFICATION PROGRAM SPECIFICALLY WITH RESPECT TO HEALTH MOBILE APPLICATIONS BECAUSE QUITE FRANKLY, PROVIDERS IN HOSPITALS AND PATIENTS WANTED TO USE APPLICATIONS FOR PURPOSES OF THE PROVISION OF CARE OR TO SELF MANAGE BUT THEY JUST COULD NOT TAKE A LEVEL OF CONFIDENCE IN ANY GIVEN APPLICATION. NOW I THINK THEY NEEDED SOME SORT OF VETTING AND KNEW THE FDA WAS COMING OUT WITH GUIDANCE HOW FAR THEY KNEW IT WAS ONLY GOING

TO COVER A SMALL SUBSET OF THE MARKET PLACE SO ROUGHLY THE FINAL GUIDANCE IS SMALLER THAN WAS ANTICIPATING AND PROBABLY WILL ONLY COVER LESS THAN 20 PERCENT OF THE HEALTH CARE PROBABLY APPLICATION MARKETPLACE, AND WE'RE TAKING OVER 40,000 APPLICATIONS AND THAT'S WHY, WHEN WE SAW FROM OUR CUSTOMERS, OUR PHYSICIANS AND NURSES AND PROVIDERS AND OTHER HEALTH COMPARE ENTITIES THAT THEY NEEDED THAT LEVEL OF CONFIDENCE WHICH IS EXACTLY THE REASON WHY WE CONCOCTED THAT PROGRAM.

>> DAN?

>> IT'S A GOOD QUESTION, I THINK SEALS ARE CERTAINLY PART OF SOLUTION BUT I THINK WE HAVE BEEN TALKING ABOUT ABOUT THIS ALL DAY BUT MAYBE JUST TAKE A STEP BACK WHEN THINK ABOUT PHIPPS.

AND PHIPPS IS A FRAMEWORK, AND I THINK YOU LADY FROM THE OUTSIDE OF THE DAY, CHAIRWOMAN RAMIREZ TALKED ABOUT THE NEED TO ADAPT AND I THINK THAT WE HAVE THIS DISCUSSION AND WE RECOGNIZE WITH THE INTERNET OF THINGS THAT WE'RE AT THE BEGINNING OF THE BEGINNING AND WE'RE SEEING BUSINESSES -- WE HEARD ALL DAY BUSINESS MODELS ARE RAPIDLY EVALVING AND PART PART OF OUR WORK GOING FORWARD IS WHAT DO WE NEED TO STOFL AND WHAT DO WE NEED TO DO TO SOLVE IT AND I THINK PART OF WHAT WE HAVE TALKED ABOUT AND THIS IS GOING TO BE THE CHALLENGE SINCE THE RECOGNITION THAT CONSUMERS DON'T READ PRIVACY POLICIES AND THAT NOTICE OF CHOICE IS NOT WORKING

SO WELL WITH THE TRANSFORM
ACTIVE TECHNOLOGY LIKE THE
INTERNET OF THINGS IS TO BEGIN
TO THINK ABOUT MOVING AWAY FROM
SILOED APPROACHES AROUND
COLLECTION AND START THINKING
ABOUT OR FOCUSING MORE ON USE
CASES AND SORT OF REAL WORLD
HARMS AND PRACTICAL SOLUTIONS
AND I'M NOT ADVOCATING FOR
ABANDONING THE PHIPPS BUT
INSTEAD WE NEED TO THINK AND
UPDATE AND INVOLVE THE PHIPPS
FOR GREATER MANUFACTURES AND
INTERPRETATION.

AND I THINK MENTION RYAN
MENTIONED INDUSTRIAL REGULATION.
LET'S KEEP IN MIND THE PHIPPS
GREW UP IN THE 70s, YOU KNOW,
AND IN AN ERA OF CENTRALIZED
DATABASES WITH A LOT OF
STRUCTURED DATA.

WHEN I STARTED AT THE FTC, 15
YEARS AGO IT'S HARD TO BELIEVE
BUT WE MEASURED PROGRESS OF HOW
WEE WERE DOING ON THE INTERNET
BY SURVEYING A HUNDRED WEB SITES
AND WE REALLY WERE -- THE
INTERNET BACK THEN WAS ONE TO
ONE, IT WAS DISCREET.

IT WASN'T TRANSACTIONAL.
TODAY, IT'S TRANSACTIONAL.
IT'S SOCIAL MEDIA A LOT OF
STRUCTURED DATA AND PROBABLY 50
OR MORE DIFFERENT PLAYS SO IT'S
MUCH MORE COMPLICATED AND I
THINK MAYBE THE CHALLENGE OR THE
OPPORTUNITY GOING FORWARD IS TO
ROLL UP OUR SLEEVES AND WORK
TOGETHER BETWEEN INDUSTRY, CIVIL
SOCIETY AND GOVERNMENT TO BE
REGARDLESSFUL OF THE PHIPPS BUT
ADOPT INTO MORE OF THOSE -- AND
THINKING THROUGH SOME OF THE USE
CASES.

>> SO DAN THAT WAS REALLY -- I

THINK THERE WERE A COUPLE OF THINGS FROM YOUR REMARKS AND I THINK ANYWAY HAVE ECHOED THEMES THAT WE HAVE HEARD THROUGHOUT THE DAY SO WE HAVE HEARD SOME VARIATION OF YOU KNOW THE FAIR INFORMATION PRACTICE PRINCIPLES ARE NOT DEAD BUT DYING, NEED TO BE ADOPTED, NOT WELL SUITED FOR THIS TECHNOLOGY. WE SUPER-ALSO HEARD PEOPLE TALKED THE IMPORTANCE AND RELEVANCE OF A USE BASED MODEL AND I WANT TO ASK THE PANELIST IF THE TWO ARE FUNDAMENTALLY INCONSISTENT.

I HEAR WHEN YOU HAVE THE ONE TO ONE RELATIONSHIP MAYBE THE CHOICE IS EMBEDDED IN THE TRANSACTION.

WHEN YOU HAVE A RELATIONSHIP WHERE YOU HAVE THE MANUFACTURE SHARING WITH THIRD MATTER ADVERTISERS, THAT CHOICE NEEDS TO BE A HIGHER LEVEL.

SO IS THAT WE'RE DOING AWAY WITH CONCEPTS LIKE CHOICE IN FAVOR OF YOUTH BASED RESTRICTION OR IS IT SEMANTICS OR DO WE NEED TO THINK ABOUT THIS A DIFFERENT WAY? DAVID.

>> I THINK THERE'S COMPATIBILITY THERE.

ONE THING ABOUT THE PHIPPS IS THAT, YOU KNOW, THEIR FLEMET AND I BELIEVE IT'S NOT JUST ABOUT CHOICE OR NOTICE OR CONSENT.

YOU HAVE TRANSPARENCY SEE AND ACCOUNTABILITY AND ACCESS AND THEY HAVE BEEN PART OF THE FAIR INFORMATION PRACTICES FROM THE BEGINNING AND SO I DON'T THINK YOU NEED TO DO AWAY FROM THE PHIPPS IF YOU DO AWAY WITH ACCESS AND I THINK THE INTERNET

OF THINGS GIVES YOU GREATER
OPPORTUNITY TO DO SO.
BUT THE PHIPPS ARE STILL
FUNDAMENTALLY SOUND.

>> MICHELLE.

>> I WAS GOING TO SAY, YOU KNOW,
COMING FROM ONTARIO CANADA, I
CAN SAY THIS, BUT ONE OF THE
EXERCISES THAT WE DID WHEN THE
PHYSICIANER DEVELOPED THE SEVEN
POLICY BY DESIGN PRINCIPLES WAS
TO MAP IT TO THE PHIPPS AND WE
AGREED THAT THEY'RE LONG
STANDING AND SOLID PRINCIPLES.
PERHAPS WHAT PRIVACY BY DESIGN
DID, AND REMEMBER AND RECALL
THAT, IN 2010, IT WAS
UNANIMOUSLY APPROVED BY THE
GLOBAL DATA COMMISSIONERS IN
JERUSALEM, AND THE AREAS WHERE
PERHAPS PRIVACY BY DESIGN HAS
ADVANCED BEYOND THE PHIPPS IS IN
THE FACT THAT, YOU'RE BEING
PROACTIVE, ABOUT PRIVACY.
YOU'RE LOOKING AT IT VERY EARLY
AND USING MECHANISMS AND TOOLS
TO DO THAT.
AND YOU'RE EMBEDDING PRIVACY
INTO THE DESIGN OF TECHNOLOGIES
OR BUSINESS PROCESSES OR NETWORK
INFRASTRUCTURES AND THEN THERE'S
THE OTHER ONE THAT HAS BEEN VERY
ATTRACTIVE AND WHAT IT SPEAKS TO
IS THAT IT SPEAKS TO GETTING RID
OF THIS ZERO SUM, LIKE IT'S
PRICE VERSUS SECURITY OR PRIVACY
VERSUS INNOVATION OR MARKETING.
RATHER THAN SAYING NO, YOU CAN
HAVE BOTH PUT YOU HAVE TO BE
INNOVATIVE, IT MAY TAKE TIME AND
DISCUSSION AND UNDERSTANDING OF
ALL OF THE OBJECTIVES THAT NEED
TO BE MET, BUT THERE SHOULD BE,
BECAUSE WHAT WE DON'T WANT IS TO
HAVE THAT SITUATION WHERE,
INVARIABLY THEN PRIVACY IS

GASTROINTESTINAL THE SHORT --

>> DAN AND I I WANT -- WE WILL
MOVE ON TO A DIFFERENT.

>> IT'S BEEN MENTIONED EARLIER
TODAY, THE FIRST PARTY
RELATIONSHIP, THE ONE TO ONE,
THAT'S REALLY WHERE TRUST AND
CONFIDENCE -- I MEAN, FOR THE
BUSINESS OPPORTUNITY OF THE
INTERNET OF THINGS TO TAKE OFF,
I MEAN WE HAVE TO GET THE POLICY
FRAMEWORK FOR THE PRIVACY AND
SECURITY RIGHT AND IT'S ALL
ABOUT TRUST AND CONFIDENT OF
CONFIDENCE AND THE INCENTIVE
OBVIOUSLY IS TO CREATE OR TO
DEVELOP OR DIFFERENTIATE ON THAT
TRUST AND CONFIDENCE.

BUT IT'S THAT THIRD PARTY
RELATIONSHIP, IT IS -- I MEAN IT
IS DIFFERENT AND THAT'S, I
THINK, AN AREA WHERE WE NEED TO
THINK THROUGH MUCH MORE
CAREFULLY.

>> OK.

SO WHILE WE'RE ON THE QUESTION
OF CHOICE, I'M GOING TO TAKE A
QUESTION FROM THE AUDIENCE.
SO THE QUESTION IS, THROUGHOUT
THE DAY PANELISTS SUGGESTED WE
NEED A CENTRAL PLATFORM LEVEL
MECHANISM FOR USER CHOICE FOR
THE IOT.

SO I GUESS WHAT I'M ENVISIONING
IS YOU GO TO ONE PLACE AND MAYBE
SET YOUR PREFERENCES FOR ALL
CONNECTED DEVICES, I'M OKAY
SHARING OF WITH THE MANUFACTURER
AND DON'T WANT TO SHIRE WITH
THIRD PARTIES OR GET THE
INSURANCE DISCOUNTS.

>> SO THEY MAY BE GOOD OR NOT.

>> --

>> I THINK WITH ANY OF THESE
QUESTIONS, YOU NEED TO ASK
YOURSELF A FEW QUESTIONS, AS YOU

KNOW, NOT NECESSARILY FOR PURPOSES OF REGULATION, BUT JUST FOR THE PURPOSES OF WHAT INDUSTRIES TO SWEEP AND WHAT TO LOOK FOR.

ASK YOURSELF WHO BUILT THE UNDERLYING MECHANISM, WHO CONTROLS THE DATA FLOW AND WHO PAYS, RIGHT, I MEAN, IF IT'S THE CONSUMER, NOT POSITIVE OF THOSE THINGS.

ANYWAY HAVE NO CONTROL IN THEY DON'T PAY, ESPECIALLY, THEN THAT'S THE KIND OF PLACE YOU WANT TO BE SCRATCHING AROUND AND LOOKING FOR 0 POTENTIAL FOR ABUSE, RIGHT?

I WOULD SAY THAT OUR LODESTAR HERE SHOULD BE TO EMPOWER THE CONSUMER TO UNDERSTAND AND AFFECT WAIT CHOICES.

I'M NOT SURE THAT NEEDS TO HAPPEN IN THE INTERNET OF THINGS-WIDE -- THAT MAKES ME UNCOMFORTABLE IN PART BECAUSE I WONDER HOW PRECISELY THE GIST OF THE QUESTION WHICH IS HOW WOULD YOU THEN, WHEN YOU HAVE STANDARDS, HOW DO YOU GET AN UP START IN THE MIX BUT WHAT ABOUT A HOUSEHOLD OR CONSUMER ON A CONSUMER BASIS, YOU KNOW, WHAT ABOUT REQUIRING ENOUGH INTEROPERABILITY SO THAT A THIRD PARTY PROVIDE IR CAN COME IN AND CREATE THANK HUB TO ALLOW YOU TO AFFECT WAIT CHOICE AND SEE SOMEWHAT GOING ON BUT I THINK UNITED STATES ABOUT SITTING DOWN AND LOOKING AT THE SPACE, WITH INSISTENT TEMPERATURES IN MIND. MARK I FIND IT UNLIKELY SUCH A SCENARIO WOULD COME ABOUT. YOU HAVE TOO MANY AREAS AND ALL OF THE MANUFACTURERS THAT WANT TO COOPERATE IN SUCH A WAY.

SOME OF THEM MAY HAVE ADVANTAGE
IN DOING THAT BUT NOT ALL OF
THEM AND ALSO A SIGNIFICANT
NUMBER OF ALREADY CLOSED SYSTEMS
OUT THERE WHICH ARE NOT TALKING
TO OTHER ELEMENTS HORIZONTALLY
INSIDE YOUR HOUSE NETWORK.
SO I DON'T SEE PRACTICALLY HOW
SOMETHING LIKE THAT WOULD WORK.
I ALSO DON'T THINK THAT THAT
LEVEL OF CONTROL IS NECESSARY.
INSTEAD WHAT WE SHOULD HAVE A IS
A STZED STANDARDIZED APPROACH.
WE DON'T USERS TO HAVE A MILLION
INTERFACES TO GO TO DO DEAL WITH
THINGS BUT IF THEY STANDARDIZE
AND IT REDUCE IT, I THINK IT
BECOMES A MUCH MORE MANAGEABLE
SOLUTION AND THAT THAT POINT THE
CONSUMER LAB LOT BETTER OFF.
>> TWO MORE POINTS I WANTED TO
HIT BEFORE WE MOVE TO THE NEXT
SCENARIO.
ONE IS, WE HEARD EARLIER TODAY
THAT ONE OF THE UNIQUE BENEFITS
OF THE INTERNET OF THINGS IS
THAT DATA CAN PROVIDE TO IMPROVE
OUR LIVES, LOWER TRAFFIC
CONGESTION AND IMPROVE MEDICAL
OUTCOMES AND A LOT OF WHAT I
THINK WE HEARD TODAY WAS THE
IDEA OF PEOPLE USING ANALYTICS
FROM THE IOT DEVICES TO IMPROVE
OUTCOMES IN PARTICULAR AREAS.
SO YOU KNOW, LET'S SAY THE DATA
IS SHARED BEYOND THE CONSUMER
AND THE MANUFACTURER.
BUT THE DATA IS SHARED IN
AGGREGATE OR ANONYMOUS FORUM?
WHAT CHOICE SHOULD THERE BE?
SHOULD COMPANIES BE ALLOWED OR
ABLE TO SHARE THE DATA ON
ANONYMOUS AGGREGATE BASIS?
WHAT DOES THAT MEAN.
I HAD SOME PEOPLE DOWN TO CALL
ON IF NOBODY RAISED THEIR TENT.

>> QUICKLY, I THINK THERE'S A DIFFERENT IN ANONYMIZED AND AGGREGATE.

I DON'T REALLY CARE -- IMAGINE THE USER SAID I HATE ADVERTISERS SO I DON'T WANT ANY DATA TO GO TO ADVERTISERS.

THAT'S A STICKING POINT.

SO APART FROM THAT RARE PERSON BUT ANONYMIZED DOES IT REALLY MATTER IN THEY KNOW WHO YOU ARE?

I UNDERSTAND THE IMPORTANCE OF ANONYMIZATION AND I READ PULL UHM'S EXCELLENT WORK LIKE EVERYONE ELSE.

AT THE END OF THE DAY, AFTER SAY YOU HAVE A 12-MILE RUN, AND YOU'RE ON THIS APP AND WHAT IT DOES, IT TELLS SNICKER THAT YOU JUST COMPLETE ADD 12-MILE RUN. AND SNEAKERS IS PAYABLE TO THEN SEND YOU A TEXT SAYING HERE IS A COUPON FOR SNICKERS AND THE BEST PLACE TO GET THEM.

THEN YOU HAVE RAN AND SO YOU'RE SUSCEPTIBLE AND THIS IS WHEN YOU GET THE SNICKERS OUT AND SO THINK ABOUT "THE NEW YORK TIMES."

>> IS THAT REALLY A ANONYMIZER ORING AGGREGATE?

DOES IT MATTER WHO I AM.

IT COULD BE JUST DEVICE 2124

WENT FOR 12-MILE RUN.

DOESN'T MATTER WHO IT IS.

THOSE ARE DIFFERENT SCENARIOS.

>> ONE SCENARIO IS THAT THEY DON'T KNOW YOU'RE RYAN CALO AND BUT THAT KNOW YOUR DEVICE.

ANOTHER IS THAT SNICKERS GETS THE INFORMATION OF A THOUSAND RUNNERS IF SAID HERE IS WHERE WE NEED TO PLACE OUR BED & BREAKFASTS.

>> RELATED, INTERESTING.

YEAH.

>> MICHELLE?

>> AS A REGULATOR SAY IF WE DO HAVE A BREACH ERKTS THE FIRST QUESTION WE ALWAYS ASK, IS IT PERSONALLY IDENTIFIABLE INFORMATION.

AND FOR THE MOST PART IF IT'S ANONYMOUS, IT'S NOT.

>> IF IT'S AGGREGATED, IT'S NOT.

>> 10 THE PRIVACY, THE PRIVACY ISSUE DOESN'T COME IN TO PLAY AT THAT POINT, I CAN TELL YOU THAT IN TERMS OF HEALTH RESEARCH, IT IS VERY CRITICAL SO WE ARE ALWAYS LOOKING AT WAYS AND SOMETIMES FOR EXAMPLE AGGREGATED DATA IS NOT EFFECTIVE IN TERMS OF THE REFERENCE IN TERMS OF LONGITUDINAL RESEARCH SO WE'RE DOING A LOT OF WORK WITH ACADEMICS AROUND EFFECTIVE WAYS TO DEIDENTIFY DATA, TO BE ABLE TO MEET THE RESEARCH OBJECTIVE, GRANULARITY OF THE DATA WITHOUT SPECIFICALLY IDENTIFYING THE INDIVIDUALS.

THAT IS ONE AREA THAT ONE SHOULD BE EXPLORING AS WELL.

AND -- HAS PROFESSOR SWEENEY ON STAFF SO IT'S AN AREA THAT YOU WILL BUILD YOUR EXPERTISE BUT THIS IS AN IMPORTANT ASPECT BECAUSE HEALTH RESEARCH IS SO VITAL AND WE DON'T WANT TO PUT PRIVACY AS A BARRIER TOWARD THAT PROGRESS.

>> GO AHEAD.

>> I THINK WITH THE EXAMPLE IF IT'S ANONYMOUS AND DEIDENTIFIED, IT GETS TO OUR LARGER QUESTION OF WE HAVE TO THINK THROUGH WHAT IS THE HARM.

WE MAY NOT LIKE THE SCENARIO OF RUNNING THE MARATHON AND GET GET SCENARIO BUT IN THE SCHEME OF THINGS IS THAT REALLY HARMFUL,

IS IT CONVERTIBLE.

I MEAN WE HAVE HAD A LOT OF DISCUSSION TODAY ABOUT MEDICAL INFORMATION FOR YOU KNOW, WE PROTECT FINANCIAL INFORMATION OR KIDS INFORMATION AND WE NEED TO THINK THROUGH SOME OF THE CONSEQUENCES.

BUT IF IT'S ANONYMOUS AND DEIDENTIFIED THEN THAT'S DHRB AND IT'S -- THAT'S AN INDUSTRY BEST PRACTICE, YOU KNOW, I DON'T NECESSARILY SEE THE HARM.

>> OK.

AND RELATED TO THAT WUNG OF THE THINGS THAT WE HEARD TODAY WAS COMPANIES IN THE SPACE CAN GET ALL OF THIS DATA, WE SHOULD BE TALKING ABOUT USE LIMITATION, NOT NECESSARY APPLY ABOUT COLLECTION.

SO DOES DATA MINIMIZATION HAVE A ROLE HERE.

IT'S ONE OF THE PHIPPS, IN CT'S IN OUR -- WE CAN SEE IT ABOUT HAVING AN ELEMENT OF DATA MINIMIZATION.

ON THE ONE HAND WE HEARD THAT COMPANIES USE DATA IN WAYS THAT UNEXPECTED THAT CONSUMERS LIKE AND WHAT IS WRONG WITH THAT? ON THE OTHER HAND WE HAVE HEARD THAT, WELL, DATA MINIMIZE ICE IS IMPORTANT FOR MAINTAINING DATA HYGIENE SO YOU DON'T HAVE THE UNWELCOME USES SO WHERE DO WE EXTEND AN DATA MIMEDZATION IN THE INTERNET OF THINGS SPACE.

>> I THINK DATA MINIMIZATION IS IMPORTANT.

I THINK, YOU KNOW, STAN CROSBY PUT IT WELL, HE SAID WE NEED MORE DATA, NOT LESS.

I MEAN DATA MINIMUM AIZ IS IMPORTANT BUT THERE'S SO MUCH INNOVATION AND SO MANY BILLS

MOLDS THAT ARE STILL DEVELOPING, SOMETIMES IT'S HARD TO PREDICT AT THE BEGINNING WHAT DATA NEEDS TO BE MINIMIZED AND WOULD YOU BE MINIMIZING THE WRONG DATA OR SORT OF CHOKING OFF POTENTIAL BENEFITS AND INNOVATION ARE SORT OF THE VALUE OF THE DATA IF YOU WERE FORCED TO PREDICT THAT AT THE BEGIN.

>> THAT SOUNDED LIKE A CASE AGAINST DATA MINIMIZATION.

>> I THINK YES AND NO.

ATTEMPT MINIMIZATION IS IMPORTANT BUT IT'S PART OF THAT ADAPTATION THAT WE'RE SEEING WITH THE EVOLUTION OF THE BERNT AND THINGS.

IT'S NOT EXPLICITLY WHITE.

>> ANYBODY ELSE HAVE A VIEW ON DATA MINIMIZATION AND WHETHER IT'S STILL RELEVANT IN THE BERNT OF THINGS ERA?

MICHELLE?

>> I WOULD INTEND TO AGREE IT'S STILL CRITICAL, EVEN IF IT'S DEIDENTIFYING THE DATA. YOU KNOW WE HAVE DONE BIG DATA ANALYSIS AS WELL AND WHAT WE ALWAYS SAY SO PERSONAL INFORMATION ARE ASSETS, VERY VALUABLE INFORMATION.

THERE WERE THE MORE ASSETS THAT YOU COLLECT AND YOU HOLD, THE HIGHER YOUR RISK OR YOUR LIABILITY, AND WE CAN HEAR FROM MATTER AND EVERYONE ABOUT SECURITY.

THE MORE DATA THAT YOU HOLD, THE HIGHER SECURITY LEVEL YOU NEED. YOU NEED TO ENCRYPT CAREFULLY BECAUSE IT'S AT RISK THE MORE DATA THAT YOU HAVE.

SO WHAT WE ALWAYS SAY, IF YOU DON'T HAVE TO COLLECT IT, IT'S THE FIRST PRINCIPLE OF DATA

MINIMIZATION.

YOU DON'T HAVE TO COLLECT THE DATA DON'T DO IT BUT IF YOU HAVE TO, THEN DO IT AT AS MINIMAL WRITE AS AS IS FEASIBLE.

THERE ARE CREATIVE WAYS.

ONE EXAMPLE WE ALWAYS GIVE WHEN WE'RE FAULKING TO INSTITUTIONS THAT COME TO US, FOR EXAMPLE, THEY WILL SAY OH, WE WANT THIS DETAILED VOTERS LIST, RIGHT, THEY WANT THE DATE OF BIRTH. WE SAY WHY.

WELL, WE HAVE NO KNOW IF THEY'RE ELIGIBLE OR NOT.

>> THEN JUST ARE THEY OVER-18 OR UNDER 18.

WHY DO YOU NEED THE DATE OF BIRTH?

SIMPLE, RIGHT?

>> THAT'S A GREAT SEGUE INTO OUR THIRD SCENARIO THAT BEN WILL BLOUSE.

>> THIS IS ABOUT A SECURITY BREACH.

SO SUE'S SYSTEM FOR CONTROLLING INTERCONNECTED DEVICES IS EXTREMELY SUCCESSFUL.

ONE DAY SHE GETS A CALL FROM HER FRIEND TOM IN CALIFORNIA WHO RUNS THE HOME SECURITY SYSTEM THAT IS COMPATIBLE WITH SUE'S SYSTEM.

AND TOM TELLS SUE THE LOG IN CREDENTIALS FOR HIS SYSTEM WERE COMPROMISE AND THE CRIMINALS POSTED LIVE VIDEO FEED OF SUE'S CUSTOMERS ON THE INTERNET AND TOM TELLS SUE SHE NOT HOW TO REMOVE ACCESS TO THE USER'S SYSTEM.

CONSUMERS ARE LOCATED THROUGHOUT THE U.S.

MARK, HOW SHOULD TOM DESIGN THE SYSTEM TO PROVIDE BETTER SECURITY?

ANY INITIAL THOUGHTS ABOUT WHAT MIGHT HAVE GONE WRONG.

>> IT'S SORT OF DIFFERENT TO SAY WHAT WENT WRONG WITH THE INFORMATION AND NOT NECESSARILY THAT WE SHOULD DIVE TOO DEEP INTO THAT BUT RATHER LOOK AT THE BEST PRACTICES THAT SHOULD HAVE BEEN FOLLOWED THAT WOULD PROTECT AGAINST THESE KINDS OF BREACHES.

>> ONE OF THE FIRST ONES AND MOST OBVIOUS IS TO ENSURE THERE'S ADEQUATE COMPARTMENTALIZATION BETWEEN CUSTOMER DATA AND SYSTEMS. YOU SHOULDN'T BE ABLE TO MOVE FROM ONE CUSTOMER'S SYSTEM INTO ANOTHER CUSTOMER'S SOME WITHOUT ANY DIFFICULTY.

AND LIKEWISE, THEY SHOULD CARE, THE CREDENTIALS INTEREST ADEQUATE, THAT THEY'RE STRONG AND THANK YOU THEY IMMEDIATE THE STANDARDS AND ALSO THE ROLL BASE ACSAYS SHOULD BE CONSIDERED AND IT SHOULDN'T BE ABLE TO TAKE CREDENTIALS FROM ONE SUBSCRIBE AND OTHER ACCESS ANOTHER'S ACCOUNT WHICH IS WHAT I SOUNDS LIKE HERE, THIS ISN'T A NEW PROBLEM.

THIS IS A DESIGN ISSUE THAT HAS BEEN SOLID IN MANY SYSTEMS. IT JUST GETS MORE COMPLICATED BECAUSE YOU BRING IN ANOTHER POPULAR WORD AT THE MOMENT WHICH IS CLOUD AND WITH THE CLOUD SYSTEMS IT'S A LITTLE BIT MORE FUZZY TO SEE WHO OWN EASY AND WHO IS IN CONTROL OF THE DATA AND THE ACCESS CONTROL SYSTEMS. BUT IF DESIGN -- IF SECURITY HAD BEEN BAKED IN AT THE START AND FROM HAD BAN PROPER ADEQUATE SECURITY ASSESSMENT WHERE A SKILLED ACCESS HER LOOKED AT

COMMON STRUGGLE SPECIALTDS AND ISSUES, TEST WHAT YOU CAN DO WITH LEGITIMATE CREDENTIALS, TESTED WHAT YOU CAN DO WITH STAFF CREDENTIALS, THIS KIND OF ISSUE CAN BE AVOIDED EASILY.

>> TO FOLLOW UP WE HAVE HEARD A COUPLE OF CONFLICTING OR AT LEAST INTENTION THEMES THROUGHOUT THE THEY, ONE OF WHICH IS THAT THESE VULNERABILITIES AREN'T THAT TECHNICALLY SOPHISTICATED. THEY ARE THINGS THAT HAVE BEEN AROUND IN COMPUTER PROGRAMS FOR YEARS.

AND ANOTHER IS THAT YOU SAID IT'S NOT TOO EXPENSIVE TO FIX THESE PROBLEMS AND WE HAVE HEARD EVERY INTERCONNECTED INTERNET DEVICES HAVE THESE PROBES SO WHAT IS GOING ON?

IS IT A LACK OF INCENTIVE?

A LACK OF KNOWLEDGE?

SHOULD WE ALL BE NOT COMPUTER HACKING BUSINESS BECAUSE IT'S SO EASY?

MARK.

>> IT'S THE RUSH TO GET THINGS TO MARKET.

A LOT OF COMPANIES OVERLOOK THE FACT THEY ARE NOT NECESSARILY THE MOST SKILLED IN THESE AREAS.

OR THEY ARE COMPLETELY UNAWARE OF THE ISSUES BECAUSE THEY'RE COMING FROM A DIFFERENT FIELD.

YOU TAKE A LOOK AT THE ISSUES WITH TREND WEBCAMS, DEFAULT PASSWORDS PROSECUTE SOMETHING THAT SHOULD NEVER PASS THROUGH INTO PRODUCTION SPACE, IT'S AN EASY THING TO PICK UP WITH A BASIC ASSESSMENT YET WE CONSTANTLY SEE THIS COME THROUGH AND HEAT COMPANIES AREN'T DOING THE ASSESSMENT THAT IS THEY PUSH

THESE OUT AND SEE IT AS A
HINDRANCE AND EXTRA STEP OR ONCE
IT LANDS ON THE CONSUMER'S DESK,
WHICH AT THE END OF THE DAY, THE
CONSUMER'S AREN'T CAPABLE OF
SETTLING THAT SECURITY NOR
SHOULD THEY HAVE TO.

THE PRODUCTS ARE SKEWER BY
DESIGN SO IF A CONSUMER WANTS TO
TURN ON ADDITIONAL SERVICE THEY
TURN IT ON BUT IT'S NOT THERE
UNLESS THEY ACTIVELY TURN IT ON,
UNDERSTANDING WHAT THE RISKS
ARE.

>> SO IN OUR HYPOTHETICAL WHO
WOULD BE RESPONSIBLE FOR POOR
DATA SECURITY?

SUE OR TOM OR BOTH OF THEM?

>> THAT'S A DIFFICULT QUESTION
TO ANSWER.

I WOULD SAY IT'S BOTH OF THEM
BECAUSE YOU HAVE TWO SYSTEMS
THERE THAT HAVE INTEGRATED AND
THEY BOTH SHOULD HAVE LOOKED FOR
THE SECURITY.

SUE AT THE START SHOULD HAVE
ENSURED THAT ANYONE WHO
INTELLIGENCE GRACE THEIR SYSTEM
WITH HER SYSTEM DIDN'T CAUSE ANY
KIND OF UNFORESEEN FORECASTS
THAT THEY HAVE NOT COMPROMISED
DATA SECURITY BUT THE OTHER
SYSTEM SHOULD HAVE THEN BEEN
TESTED TO ENSURE THAT SOMETHING
UNFORESEEN HASN'T HAPPENED.

>> MICHELLE?

>> WE ALWAYS SAY YOU CAN
OUTSOURCE SERVICES BUT CAN'T
OUTSOURCE ACCOUNTABILITY SO I
THINK IT WAS SUE'S
RESPONSIBILITY TO ENURE BECAUSE
SHE'S THE FIRST POINT OF THE
CONTACTING TO THE CONSUMER THAT
ANY SERVICE THAT SHE CONTRACTS 4
BETTER MEET THE SAME STANDARD AS
SUE IS ADVERTISING TO HER

CLIENTS.

THE OTHER THING I THINK TOM AND SUE SHOULD HAVE HAD WAS A BREACH PROTOCOL.

AS MUCH AS YOU WANT TO DESIGN THINGS, IN YOU KNOW, YOU HAVE TO FACE THE FACT THERE COULD BE A BREACH SO THE QUESTION SHOULD BE DO THEY SHOULD THE SYSTEM DOWN FROM THE WORK, WHAT SHOULD THE ACTIONS BE.

I CAN TELL YOU WE HAD A SIMILAR SITUATION WITH A VIDEO CAMERA AND A BACK UP CAMERA ON A CAR. AND I DON'T WANT TO TAKE UP TOO MUCH TIME BUT IT WAS A SIMILAR SITUATION.

IT WAS A BREACH, A METHADONE CLINIC AND THE INDIVIDUALS THAT WERE ELIGIBLE TO RECEIVE METHADONE MUST DEMONSTRATE THAT AND HAVE A WITNESS WITH RESPECT TO A URINE SAMPLE.

10 IT WAS THE BEST OF THE WORST IN TERMS OF A PRIVACY APPROACH SO THE CLINIC DECIDED TO PUT UP A WEBCAM IN THE WASHROOM. AND YOU KNOW THEY WERE CONVINCED THEY GOT THE RECOMMENDATION FROM A LAW ENFORCEMENT SERVICE THAT THEY COULD INSTALL A WIRELESS CCTV, YOU KNOW, THE RECEPTIONISTS COULD VIEW AND IT NO PROBLEM.

IT'S WIRELESS AND JUST FROM THE WASHROOM TO THE RECEPTIONIST. WHAT HAPPENS. SOMEBODY GOING IN HAS A BACK UP CAMERA.

WE HAD THE SMART AUTOMOBILE PANEL JUST BEFORE THIS, HAS A BACKUP CAMERA AND SEES IT FUZZY AND SEES SOMEONE URINATING AND HAD PICKED UP THE SIGNAL BECAUSE THIS IS NOT A SECURE SIGNAL THEY USE.

SO IN THIS CASE WE'RE SAYING, AS

SOON AS WE FOUND OUT AND OF COURSE IT'S ALWAYS THE MEDIA THAT FINDS OUT, RIGHT, THE FIRST POINT WAS, SHUT THE SYSTEM DOWN. SHUT IT DOWN TRY TO AT LEAST REDUCE THE HARM PRODUCE BID THIS PARTICULAR BREACH.

THEY D THEY FOLLOWED THROUGH. BUT WHAT IS INTERESTING IS, AND I KNOW I'M GOING LITTLE BIT OFF TOPIC BUT THE INTERNET IS GOING TO BROADEN -- AND ANOTHER PANEL TALKED ABOUT -- OUR DEFINITION OF WHAT IS PERSONAL INFORMATION. BECAUSE IN THIS ORDER OR INVESTIGATION THAT OUR COMMISSIONER FOUND, YOU SEE THE CLINIC SAID OH, BUT IT WASN'T RECORDED.

YEAH, IT WAS JUST RA TRANSMISSION.

WE WERE JUST MONITORING. BUT OUR COMMISSIONER SAID, NO, NO, WE GOT EXPERT.

SHE SAID THE PICKS EMS THAT WERE GOING ACROSS THE PARTICULAR AIRWAYS, IF THEY WERE INTERCEPTED, WHICH THEY WERE, COULD IN FACT BECOME A RECORD: THESE WERE PIXELS, RIGHT? THE FACT THEY WERE PICKED UP IN THIS INSECURE BANLD RADIO AFRICA SEE BAND, THE FACT THAT A BACKUP CAMERA COULD, INTERCEPT THAT AND TAKE A RECORD, SHE CONCLUDED THAT IN FACT THESE PIXELS WRARY RECORD.

>> I THINK MARK AND THEN DAN.

>> I JUST WANTED TO AT ONE THING TO THAT AND THAT IS SHUTTING IT DOWN ISN'T ALWAYS THE ANSWER OR RATHER IF IT IS THERE HAVE TO BE CONSIDERATIONS FOR WHAT HAPPENING ARE.

WHEN YOU TALK ABOUT A STREAMING SERVICE AND TALK ABOUT SOMETHING

LIKE AN INTERNET CONNECTED LOCK,
THERE COULD BE FAIRLY
SIGNIFICANT CONSEQUENCES TO THE
PERSON WHO IS REHIGHING OPEN
THAT LOCK IN ORDER TO GET INTO
THEIR HOUSE OR RELY ON FOR
SECURITY.

AND AT THAT POINT, THE DESIGN
SHOULD TAKE INTO ACCOUNT WHAT
HAPPENS WHEN THE SERVICE DOES
GET SHUT DOWN OR THE INTERNET IS
UNAVAILABLE.

IF INTERNET IS UNAVAILABLE, YOU
SHOULDN'T BE LOCKED OUT OF YOUR
HOUSE.

CONSEQUENTLY IF THE INTERNET IS
UNAVAILABLE YOUR LOCK SHOULDN'T
EVEN FAIL OPEN AND THEREFORE
PEOPLE WOULD BE ABLE TO WALK
INTO YOUR HOUSE.

>> SO I THINK, IN THIS INSTANCE,
SUE SHOULD HAVE, YOU KNOW WE
TALKED ABOUT SHE SHOULD HAVE
BUILT SECURITY INTO HER PRODUCTS
BUT IN A VERY GLOBAL LEVEL, YOU
KNOW, THERE ARE SOME -- AND
TREND NET IS AN IMPORTANT CASE
BUT THERE ARE VERY HIGH LEVEL
PRINCIPLES THAT CAN APPLY, WHICH
IS FOR INSTANCE, STOP USING HARD
CODED PASSWORDS AND ACCOUNTS IN
DEVICES THAT CONNECT TO NETWORKS
SO COMMON SENSE.

AND THEN QUIT USING INSECURE
PROTOCOLS FOR DEVICE
CONFIGURATION AND MANAGEMENT.
BUT IT'S SORT OF THINKING THESE
THINGS THROUGH AT THE BEGINNING
AND NOT AFTER THE FACT.

>> I WAS GOING TO ASK QUESTIONS
FROM THE AUDIENCE.
WHAT ARE EXAMPLES OF INTERNET OF
THINGS PRODUCTS THAT HAVE DONE A
GOOD JOB OF JUSTIFYING PRIVACY
AND SECURITY AND WHAT
SPECIFICALLY IS GOOD ABOUT THEM?

>> DREW, WHY DON'T YOU START US OFF BECAUSE HOPEFULLY YOU HAVE SEEN HEALTH APPS THAT YOU THINK ARE GOOD EXAMPLES.

CERTAINLY.

ONE OF THE THINGS THAT WE TEST POLITICSES FOR IN ADDITION TO PRIVACY AND SECURITY IS ESSENTIALLY THE EXTENT TO WHICH THEY TAKE THEIR DATA SERIOUSLY IN TERMS OF THE PRIVACY AND SECURITY PARAMETERS THAT THEY PUT IN PLACE AND I THINK ONE OF THE IMPORTANT THINGS THAT DO, ESPECIALLY CLOUD BASED TECHNOLOGY IS THAT THEY ENGAGE PREMIER WELL-KNOWN HOSTING PROVIDE AND OTHERS UNIVERSAL A LOT OF PROVIDERS SUCH AS FIRE HOSE, NOW AMAZON WILL SIGN SOMEWHAT CALLED A BUSINESS ASSOCIATE AGREEMENT AND ESSENTIALLY THAT IS THEIR PROMISE, YOU KNOW WHICH IS THEY ARE BOUND TO UPHOLD THE DATA WITH RESPECT TO CERTAIN PRIVACY PARAMETERS, SECURITY MEASURES, TO MAKE SURE THAT THEY'RE ESSENTIALLY ON THE COMOOK THEY TAKE THE INFORMATION AS SERIOUSLY AS THE CONSUMER DOES WITH RESPECT TO THEIR OWN INFORMATION.

SO A LOT OF THE DEVELOPERS THAT WERE -- WE'RE WORKING WITH WHO ARE NOT EVEN SUBJECT TO HIPAA ARE ENGAGING IN UTILIZING SOME OF THE SERVICE PROVIDERS WHO ARE HIPAA COMPLIANT.

SO IT'S NICE TO SEE PEOPLE GO ABOVE AND BEYOND THE VENDORS THAT THEY WANT TO ENGAGE WITH. BECAUSE THEY WANT THAT CLOUD IN THE MARKETPLACE AND MORE IMPORTANTLY IT'S ESSENTIALLY THEIR PROMISE TO THEIR USERS AND

TERMS OF WHAT LEVEL THEY HOLD THEIR USERS INFORMATION.

>> ANY OTHER EXAMPLES FROM ANYONE ELSE.

>> I WOULD LIKE TO SAY GOOGLE GLASS IS A GOOD EXAMPLE OF WELL DESIGNED INTERNET THING.

IT HAS SIGNIFICANT CHALLENGES.

THERE'S A LOT OF CONTENTION ARRANGEMENT ITS USE BUT IF YOU LOOK AT THE MODEL BEHIND IT GOOGLE HAS DONE GOOD JOB.

THE SECURITY, YES, I WAS ABLE TO COMPROMISE SECURITY AND OTHER PEOPLE HAVE COMPROMISED IT IN OTHER WAYS BUT GOOGLE HAS BEEN VERY QUICK TO RESPOND AND FIX THOSE VULNERABILITIES.

IN AN ACKNOWLEDGE TURN AROUND OF ABOUT TWO WEEKS WHICH IS PHENOMENAL COMPARED TO ANY OF THE OTHER DEVICES OUT THERE.

IF YOU TAKE A LOOK AT HAND JETS, HAWO HANDSETS HAVE A HALF LIFE OF FIXING VULNERABILITIES

BECAUSE MANY DON'T GET FIXED AND I THINK GOOGLE HAS DONE A GREAT JOB IN DEVELOPING A SYSTEM WHERE PEOPLE CAN TELL THEM ABOUT VULNERABILITIES AND THEY CAN TAKE THOSE, FIX THEM, AND PUSH IT OUT FOR THE USENER HAD A WAY THE USER DOESN'T HAVE TO DO ANYTHING AND THE DEVICE GETS SECURED AND THAT'S A GOOD WAY OF DOING IT.

ALSO THEY HAVE SHOWN THAT THEY'RE VERY RESPONSIVE IN TERMS OF UNDERSTANDING CONCERNS PEOPLE HAVE WITH THE KIND OF CONTENT THAT SHOULD BE DISPLAYED ON GLASS.

THEY HAVE BEEN VERY CLEAR IN DISPLAYING THE KIENGDZ OF DATA THAT WILL BE SHARED BACK AND FORTH ON GLASS AND HOW IT'S

INTEGRATED AND SO I THINK THAT'S A PHENOMENAL PRODUCT, AND ANOTHER ONE I WANT TO MENTION IS THE NEST THERM THAT IS BECAUSE I HAVEN'T BEEN ABLE TO BREAK IT HALF LAUGH.

>> GOOD.

>> IF I COULD JUST FOLLOW UP WITH ONE QUESTION ON THE SPECIFIC SCENARIO, THIS TALKS ABOUT HOME SECURITY SYSTEMS AND THE FACT THAT HAMMERS WERE ABLE TO ACCESS THE LIVE VIDEO FEEDS.

>> AND THIS MAY HAD BEEN TECHNICAL QUESTION BUT WE KNEW GOOGLE AND FACEBOOK STARTED ENCRYPTING COMMUNICATIONS ON FACEBOOK IN 2013 DO PEOPLE THINK THAT LIVE VIDEO FEEDS THAT COME THROUGH INTERNET OF THINGS PRODUCTS SHOULD BE ENCRYPTED? MAYBE THAT'S A QUESTION FOR MARK.

>> I THINK KIERCHED OF SENSITIVE ATTEMPT THAT GOES THROUGH AN UNTRUSTED ZONE SUCH AS THE INTERNET SHOULD BE SECURED WITH INSCRIPTION AND WHETHER IT SHOULD BE ENCRYPTED IN ZONES LIKE DMZ'S, WE HAVE THE TO GO AND THE CAPABILITY IT'S KIND OF A NO-BRAINER.

THERE WERE OTHER THINGS TO TO CONSIDER.

FOR EXAMPLE, THERE'S A LOT OF MAN UP HAITIAN OF CONTENT AND AGGREGATION THAT GOES ON INSIDE OF A NETWORK, AND ENFORCING ALL OF THIS TYPE OF DATA MUST BE ENCRYPTED COULD BECOME VERY RESTRICTIVE TO COMPANIES AND CAUSE QUITE A LOT OF PROBLEMS WITH A LOT OF THE SERVICES THAT THEY RUN, AND SO YEAH, IN TERMS OF INTERNET VIDEO FEEDS, I THINK THEY SHOULD BE ENCRYPTED.

>> OK.

WHY DON'T WE QUICKLY MOVE ON TO SCENARIO FOUR.

I THINK WE COVERED MOST OF THIS BUT LET'S TAKE -- I THINK WE HAVE BEEN -- WE TALKED ABOUT A PRODUCT AS MARKETED.

AND NOW LET'S SAY SUE DECIDES TO MAKE A MODIFICATION TO HER PRODUCT SO BEFORE IT WAS A ONE-ON-ONE PRODUCT AND SHE DID ALL OF THE DISCLOSURES AND LET'S SAY SHY GOT ALL OF THE CONSENTS AND NOW DECIDED TO CHANGE HER DATA SHARING AND SHE NOW WANTS TO SHARE DATA WITH THIRD PARTIES EITHER FOR MEDICAL DISCOUNTS OR, YOU KNOW, INSURANCE DISCOUNTS, FOR ADVERTISING, WHATEVER IT MAY BE.

>> SO FOR SOMETHING THAT WE'RE -- WHERE DEVICE HAS CHANGED OR THE FUNCTIONALITY OR THE DATA SHARING HAS CHANGED WORKERS VERY TALKED TO THE FTC ABOUT THE PRINCIPLE THAT, IF THERE'S A MATERIAL RETROACTIVE CHANGE TO A PLOIFS POLICY, THERE SHOULD BE OPT IN CONSENT.

SO AS A PRACTICAL MATTER, HOW WOULD THESE COMPANIES GO ABOUT GETTING CONSUMERS CONSENT IF THEY WERE TO DECIDE TO CHANGE THEIR SHARING.

>> DAN?

>> I THOUGHT YOU SAID RYAN. DO YOU WANT TO GO?

>> THAT'S FINE.

I'LL GO.

NO, YOU GO.

>> YOU FIRST.

>> I'LL SAY THIS QUICKLY.

WE CAN'T EVEN GET CONSENT AMONG THE TWO OF US FOR WHO SHOULD INTE.

THERE'S AN EARLIER QUESTION

HERE, WHICH IS, SHOULD THAT
RAISE ALARM BALANCES IN AND OF
ITSELF, RIGHT DO YOU REMEMBER
THE FIRST TIME THAT YOU WENT TO
A MOVIE THEATER AND YOU PAID
LIKE NINE DOLLARS TORE YOU KNOW,
NOW UNITED STATES MUCH MORE BUT
THIS WAS LIKE A COUPLE OF YEARS
AGO AND YOU PAID YOUR MONEY AND
GOT YOUR POPCORN OR WHATEVER AND
THEN YOU SEE ADDS FOR COCA-COLA
FOR 10 MINUTES EXACTLY.
THAT IS JUST LIKE -- THAT'S
SOMETHING WHERE IT'S SORT OF
LIKE THAT VALUE PROPOSITION, THE
GIST OF THAT TRANSACTION HAS
SHIFTED ON YOU.
THAT SHOULD SET UP ALARM BELLS.
I UNDERSTAND THE COUNTSER
ARGUMENTS, OH, I WOULD BE EVEN
MORE THAN \$11 IF WE DIDN'T HAVE
THE ADS BEFOREHAND.
YOU CAN ALWAYS COME LATE.
I UNDERSTAND THIS.
BUT ALARM BELLS SHOULD BE GOING
OFF.
WHEN ON STAR IS USING
INFORMATION FOR MARKETING THAT'S
A CHANGE OF THE GIST OF THE
TRANSACTION, AND WE SHOULD BE
LOOKING FOR -- I'M NOT A DATA
MINIMIZATION PROPOSE POINT.
I THINK THAT THE DATA SHOULD BE
PROMISCUOUS ACCUSE AND VALUE
ADDITIVE AND I SEE A TREMENDOUS
UPSIDE TO THE DATA BEING
PROMISCUOUS ACCUSE.
JUST WHEN WE SEE THESE DECADE
'ER NON-BENEFICIAL USES, IT
SHOULD BE TRIGGER ALARM BELLS
AND TRIGGER HAVING TO SIT DOWN
AND TALK ABOUT THAT TRANSACTION
AGAIN IN A FUNDAMENTAL WAY NOT
JUST HAVING SOME UPDATE ON A
POLICY WHERE RIGHT?
SO WATCHING FOR THAT CHANGE THE

NATURE OF THE TRANSACTION IN A WAY THAT DOES NOT BENEFIT THE CONSUMER.

>> WELL, I WOULD SAY THERE ARE TWO REACTIONS TO THE SCENARIO.

FIRST, I'M NOT SURE

THEORETICALLY THAT YOU KNOW IN INTERNET OF THINGS ENVIRONMENT

AT PRESENT THAT INFORMATION IS BEING CHANGED SORT OF FOR, YOU

KNOW, MEDICAL INFORMATION FOR A DISCOUNT SO I THINK WE DO SORT

OF HAVE TO DEAL WITH, YOU KNOW,

THE HERE AND NOW AND THE CURRENT AND THE PRACTICAL.

BUT THAT BEING SAID, IF SUE IS

TURNING AROUND AND SELLING PII,

THAT'S A PROBLEM.

AND WHETHER THAT IS IN THE

THEORETICAL WORLD SCENARIO OR IF

SHE TURNING AND AROUND SELLING

IT TO A DATA BROKER, THAT'S A

BIG PROBLEM AND I CAN SAY THAT'S

PART OF THE MANUFACTURES THE MTC

PUT ON THE 6B BUT IT'S THE

SECONDARY USE ISSUE IS CERTAINLY

VERY IMPORTANT.

>> I WANT TO QUICKLY RESPOND AND

SAY THAT'S WHY PORTABILITY AND

STANDARDIZATION IS HELPFUL.

THE SCENARIO IS THAT YOU BUY

SOMETHING, YOU BUY A PREUCT, IT

DOES SOMETHING COOL AND THEN

SUDDENLY THEY WILL BE SELLING TO

A THIRD PARTY OR MARKETING OR

WHATEVER.

OR GIVING YOU A SCEUNT WHICH WE

CAN READ SCOTT PEPPET'S WORK

ABOUT YOU CAN FRAME ANYTHING

PASS A DISCOUNT.

YOU RAISE THE PRICE FROM

EVERYBODY ELSE AND MAKE IT AS A

DISCOUNT.

SO IF YOUR DATA IS PORTABLE,

RIGHT, THEN YOU CAN PICK UP AND

GO TO ANOTHER PROVIDER F NOT,

YOU'RE LOCKED IN.
SO ONE NICE THING ABOUT
STANDARDIZATION AND PORTABILITY
TO POLICE THIS AREA IS, IF
THERE'S ESSENTIAL CHANGE TO THE
TRANSACTION, THAT'S WHY THERE
SHOULD BE MOVIE THEATERS THAT
DON'T SHOW ADS BEFOREHAND SO I
CAN GO TO THOSE MOVIE
AUTHORITIES.

>> DAVID, I WANTED TO ASK YOU
ABOUT THE SCENARIO OF THE KIND
OF MODIFICATION TO THE ORIGINAL
CONTRACT SO TO SPEAK.
AND WHAT YOUR VIEWS ARE ON THAT
AND WHAT YOU THINK THE PRACTICAL
ADVICE SHOULD BE TO COMPANIES
THAT WANT TO ENGAGE IN THIS
PRACTICE.

>> RIGHT.

WELL, I THINK IT COULD BE
MATERIAL BECAUSE MATERIALALITY
IS A FACT INTENSIVE INQUIRY AND
YOU HAVE TO LOOK AT HOW MUCH
DOES THINK AFFECT THE CONSUMER'S
DECISION TO USE THE PRODUCT OR
NOT AND WAS THE -- WAS SUE
MAKING SOME SORT OF IMPLIED
CLAIM WHEN SHE WAS ORIGINALLY
OFFERING THE PRODUCT WITHOUT --
WITHOUT SELLING CONSUMER DATA.
AND YOU KNOW, AS FAR AS HOW TO
OBTAIN CONSENT, I THINK THAT
THERE ARE A LOT OF POSSIBILITIES
AND ITS IS SORT OF DEPENDS ON
THE PARTICULAR SITUATION BUT
THAT SUE FINDS HERSELF IN WITH
THE CONSUMER AND IN THIS CASE AN
APP SO YOU MIGHT SUPER-A JUST IN
TIME NOTICE OR SOMETHING THAT
POPS UP AND MAYBE THERE'S
REGISTRATION SO SHE CAN REACH
OUT TO THEM THROUGH E-MAIL AND
SO AND ON SO YOU KNOW THERE'S
DEFINITELY -- THERE ARE
CONNECTIONS THAT SHE FORMED WITH

THE CONSUMER WHEN SHE ESTABLISHES RELATIONSHIP AND ONE OF THOSE SHOULD WORK FOR CONSENT.

>> WE HAVE JUST A FEW MINUTES LEFT SO I WANTED TO GO DOWN THE LINE AND ASK THE PANELISTS ONE QUESTION, WHICH IS: IF YOU WERE THE FTC WHAT WOULD YOU DO NEXT? WE CAN START WITH -- WHICH WAY TO DO WE WANT TO START. LET'S START WITH MARK.

>> I THINK ONE OF THE CHALLENGES HERE IS HOW WIDE THE INTERNET OF THINGS IS AND HOW FAST IT'S MOVING.

I'M NOT SURE WE FULLY UNDERSTAND ALL OF THE QUESTIONS NOW LET ALONE MOVE ON TO PROPOSING ANSWERS SO I THINK WE SHOULD BE CAREFUL TO CONSTRUCT A BALANCE BETWEEN GUIDING COMPANIES TO THE RIGHT DIRECTION AND ENFORCING AND I THINK THAT WE SHOULD BE LIGHT UPON THE ENFORCEMENT AT THIS POINT BUT THERE IS A HUGE ROLE TO BE PLAYED IN POINTING THESE COMPANIES TOWARD THE RIGHT ANSWERS THAT ARE OUT THERE.

AS WE HAVE HEARD TIME AND TIME AGAIN, A LOT OF THESE DESIGN PROBLEMS HAVING SOLVED.

THEY WERE SOLVED IN THE EARLIER VERSION OF THE INTERNET AND BY FOLLOWING THE PRACTICES THAT ALREADY EXIST, I THINK

90 PERCENT OF THE ISSUES CAN BE ADDRESSED AND THAT LEADS US WITH THE REMAINING PROBLEM SET OF WHAT ABOUT THESE NEW UNIQUE ISSUES THAT ARISE AS A RESULT OF THE INTERNET OF THINGS BUST AS I SAY, SOFTLY I THINK, WE DON'T WANT TO STIFLE THIS.

>> OK.

DAVID?

>> WELL, YOU KNOW, I THINK THAT ONE THING THAT THE FTC CAN DO IS ENFORCEMENT AND IN FACT THE COMMISSION HAS ALREADY DONE THIS WITH THE TREND NET CASE, AND JOE MENTIONED ON THE EARLIER PANEL THAT THERE'S NO FEDERAL OMNIBUS PRIVACY LEGISLATION AND SO IN THE MEANTIME THERE ARE REGULATORY GAPS AND THE FTC CAN KIND OF STEP IN WITH ENFORCEMENT.

AND I WOULD LIKE TO SEE MORE WORK DONE ON THE MEANING OF THE CONTEXT.

WE BEGAN WITH CONTEXT TODAY AND IT HAS COME UP WITH EVERY PANEL TO TALK ABOUT WHAT KIND OF COLLECTION AND USE IS CONSISTENT WITH THE CONTEXT OF A TECHNOLOGY OR A RELATIONSHIP AND SO I THINK THERE'S OPPORTUNITY THERE FOR THE FTC TO EITHER, YOU KNOW, COME UP WITH GUIDANCE OR REVISIONS TO THE PRIVACY REPORT SPECIFICALLY ADDRESSING CONTEXT.

>> SO I CAN SAY THE FIRST THING IS TO CONTINUE TO EDUCATE.

I THINK THAT THESE SESSIONS YOU KNOW, HAVE BEEN EXTREMELY HELPFUL.

AND THE CONVERSATIONS HAVE BEEN VERY PROVOCATIVE AND I THINK IT ALL COMES DOWN TO EDUCATING CONSUMERS, EDUCATING INDUSTRY, EDUCATING THE TECHNOLOGISTS THAT BUILDING ALL OF THESE SOLUTIONS THAT WERE UTILIZING ON A DAILY BASIS.

I THINK YOU KNOW THE FTC CAN ALSO WORK WITH THE INDUSTRY TO PARTNER UP BECAUSE WE'RE LOOKING AT A MARKET THAT IS GROWING EXPONENTIALLY AND THERE'S TOO MUCH VOLUME TO BE ABLE TO NAVIGATE AND TO BE ABLE TO

ENFORCE EFFECTIVELY ALONE.
AND LASTLY, I THINK UNITED
STATES PARTNERING WITH THE OTHER
AGENCIES.

SO I THINK, YOU KNOW, THE FCC,
FDA, ONC, YOU NAME IT, I THINK
IT'S ABOUT COMING UP WITH NONE
DUPLICATIVE STTDZ OR RULES WHERE
IT -- STANDARDS OR RULES WHERE
IT CAN BE RISK BASED AND THAT
ALSO ESSENTIALLY MINIMIZES THE
TOLL ON THE AGENCIES THEMSELVES
BUT REALLY WORK TOGETHER AND
COHESIVELY.

>> MICHELLE?

>> I DON'T KNOW.

DO YOU WANT A CANADIAN'S
PERSPECTIVE TELLING YOU WHAT TO
DO?

>> SURE.

>> SO I'M GOING TO TALK ABOUT
OUR EXPERIENCE.

I THINK WHAT WORKED FOR US IS
THE PRIVACY BY DESIGN FRAMEWORK
SO WE'RE REALLY PLACED THAT THE
FTC HAS TAKEN THIS ON AS A CORE
VALLEY.

WHAT WE SEE NEXT IS REALLY THE
FACT THIS IS HUGE ECOSYSTEM THAT
NEEDS A LOT OF PLAYERS AT THE
TABLE, SO IN TERMS OF
PARTNERSHIPS WHAT YOU'RE DOING,
AND THE OTHER PARTNERSHIP IS
WITH THE ACADEMIC COMMUNITY.
THEY KNOW WHAT TECHNOLOGIES ARE
COMING, YOU KNOW, IN TO THE
PIPELINE.

THEY KNOW WHAT THE
VULNERABILITIES ARE, SO I THINK
THERE HAS TO BE A MEANS TO
BRIDGE WHAT IS GOING ON IN THE
ACADEMIC WORLD TO WHAT IS
PRACTICAL AND WHAT COMPANY SORT
OF ENCOURAGED IN TERMS OF
TECHNOLOGY DEVELOPMENT.

>> DAN?

>> THANKS MANEESHA.

I HAVE BEEN VERY ENCOURAGED BY WHAT I HAVE HEARD TODAY.

I MEAN FROM GOVERNMENT, CIVIL SOCIETY, INDUSTRY, SORT OF ALL RECOGNIZING THE OPPORTUNITIES AND CHALLENGES RELATED TO THE INTERNET OF THINGS PARTICULARLY PRIVACY AND SECURITY.

THERE'S A COUPLE OF THINGS THOUGH THAT SORT OF NEED TO KEEP IN MIND, YOU KNOW, FIRST IS, I MEAN ONE SIZE DOESN'T FIT ALL AND YOU KNOW YOU CAN'T -- THIS IS AN EVOLUTION THAT REQUIRES A NEW WAY OF THINKING IN A FLEXIBLE FRAMEWORK TO ADAPT TO THE 21st CENTURY SO AS ALWAYS AS THE FTC THINKS ABOUT THIS IT NEEDS TO BE IN A TECHNOLOGY NEUTRAL WAY AND I THINK THERE'S AGREEMENT THAT YOU KNOW ANY SORT OF MOVE TOWARD REGULATION AT THIS POINT IS PREMATURE.

WE JUST DON'T KNOW ENOUGH ABOUT THE BUSINESS MODELS AND WHERE THIS IS GOING.

SO I THINK YOU KNOW THAT THE OPPORTUNITY IS, LET'S ROLL UP OUR SLEEVES AND GET TO WORK BUT ONE FINAL THING IS SORT OF AS A -- WE TALKED A LOT ABOUT SOCIETAL BENEFITS AND COMPETITIVENESS.

BUT THERE'S A LOT AT STAKE HERE. SO YOU KNOW TO ACHIEVE THE BENEFITS OF THE INTERNET OF THINGS.

THE COUNTRY THAT GETS THIS RIGHT WILL LEAD THE WORLD.

AND I MEAN I THINK THAT THE UNITED STATES HAS CERTAINLY LED THE WORLD, YOU KNOW, KEEPING THE INTERNET FREE AND OPEN AND I HOPE THAT THE WORK THAT WE DO TOGETHER WILL -- WE'LL BE ABLE

TO CONTINUE THAT LEADERSHIP.

>> I'LL BE REALLY FAST.

SO COMMISSIONER OLHAUSEN SAID SOMETHING INTERESTING ABOUT HOW THE INTERNET OF THINGS HAS TWO FUNCTIONS.

FIRST OF ALL IT COLLECTS INFORMATION AND ALSO IN MANY INSTANCES IT GIVES INFORMATION BACK TO THE CONSUMER, RIGHT? AND WE HAVE BEEN TALKING QUITE A LOT ABOUT THE COLLECTION OF INFORMATION AND IF THAT'S SECURE AND SO FORTH BUT WE SHOULD BE KEEP AN EYE ON THE ABILITY OF NOW CORPORATIONS TO BE ABLE TO REACH PEOPLE IN THEIR HOMES ANY TIME AND ANYWHERE, RIGHT? I MEAN, WON'T SOME OF THE INFORMATION THAT COMES TO CONSUMERS BE ADVERTISEMENTS? HOW DOES THE ABILITY TO REACH A CONSUMER IN THE CONSUMER'S OWN HOME IN A NONMARKET CONTEXT, HOW WILL THAT CHANGE MARKETING DYNAMICS POSSIBLY FOR THE WORSE? I'M NOT SAYING THIS IS HAPPENING TODAY BUT IT WOULD SURPRISE ME IF WE HAD THIS ENTIRE MULTIBEING INTERPRET OF THINGS AND NO EFFORT WERE MADE FOR YOUR REFRIGERATOR TO MAYBE SUGGEST THAT YOU SHOULD GET ICE CREAM WITH THE MILK THAT YOU.

>> JUST RUN OUT OF.

SO I WOULD LIKE TO SAY JUST KEEP OUR EYE ON THAT AND I'M WITH THE PANEL LARGELY ABOUT WAIT WAIT AND SEE.

>> SO IF THE PANELISTS COULD STAY IN THEIR SEATS I WOULD LIKE TO INTRODUCE JESSICA RICH WOULD WILL MAKE CLOSING REMARKS.

>> THIS IS ONE OF THOSE BODIUMS THAT CAN I BARELY CAN SEE OVER SO I WILL TRY TO BE LOUD.

THIS HAS BEEN AN INCREDIBLE DAY,
ALSO A LONG DAY.
SO I WILL BE SHORT AND LOUD.
FIRST THANKS TO ALL OF THE
PANELISTS FOR TAKING TIME OUT OF
THEIR BUSY DAY AND THERE ARE
MANY PANELISTS IN THE AUDIENCE
TO EDUCATE ABOUT ABOUT SOMEWHAT
EMERGING IN THIS AREA AND I
WOULD LIKE TO THANK STAFF WHO
WORKED REALLY HARD TO MAKE THIS
A SUCCESS, KAREN, RUTH, CORE
AAN, BEN DAVIDSON AND KRISTIN
AND MARK WHO IS OUT THERE
SOMEWHERE.
I THINK HE WAS CONTROLLING THE
FAN.
HE WENT OUT TO TURN THAT
MONSTROSITY FAN OFF.
I WOULD HIKE TO OFFER A FEW
BRIEF OBSERVATIONS ABOUT THINGS
THAT WE LEARNED TO BE AND WHERE
WE'RE GOING NEXT.
WE DID READ THE WORK HOP IS A
PRELUDE TO PRESENTATION AND I
WILL LEAD YOU IN EXPENSE ON
WHETHER THAT IS TRUE AND DAN DID
MENTION REGULATION AND SO I WILL
ADDRESS THAT IN A FEW MINUTES.
IN OUR FIRST PANEL WE HEARD
ABOUT SMART ITEMS AND SERVICES
APPEARING IN HOMES ACROSS THE
COUNTRY FROM WINDOW SENSORS TO
OVEN AND ENERGY METERS, THE
ARRAY OF CONNECTIONS BRINGS MANY
BUSINESS PARTNERS INTO HOMES BUT
THERE ARE CHALLENGES INCLUDING
BALANCING CONVENIENCE AND
INNOVATION WITH PRIVACY AND
SECURITY.
AND THERE ARE THOSE ROLLING UP
THEIR SLEEVES TO ADDRESS THOSE
CHALLENGES SUCH AS THIS
MULTISTAKEHOLDER EFFORT TO
DEVELOP A VOLUNTARY CODE OF
CONDUCT FOR ENERGY USAGE DATA.

LOOK FORWARD, WE WANT TO ENSURE THAT COMPANIES THAT BRING INNOVATION INTO THE HOME ARE NAILING DOWN PRIVACY AND SECURITY BEFORE OPENING THE DOOR.

IN PANEL TWO WE HEARD ABOUT CONNECT THE HEALTH AND FITNESS DEVICES RANGING FROM CASUAL WEARABLE FITNESS DEVICES TO CONNECTED MEDICAL DEVICES SUCH AS INSULIN PUMPS THAT HAVE THE POTENTIAL TO SAVE LIVES, ENHANCE CARE AND REDUCE COSTS.

AS OUR PANELISTS RECOGNIZED HOWEVER, PRIVACY AND SECURITY ARE ESSENTIAL TO ENABLING CONSUMERS INTERESTS AND RESEARCHERS TO TAKE FULL ADVANTAGES OF THE BENEFITS BROUGHT ABOUT BY CONNECTED HEALTH AND FITNESS DEVICES, PARTICULARLY GIVEN THE SENSITIVITY OF THE INFORMATION INVOLVED.

THESE PROTECTIONS INCLUDE ENCRYPTION, COMPARTMENTALIZATION AND APPROPRIATE USE RESTRICTIONS.

S TO WILL HELP ENSURE THAT CONSUMERS' HEALTH INFORMATION WILL NOT UNEXPECTEDLY BE USED IN WAYS THAT CONSUMERS DON'T WANT THEM TO BE USED.

IN THE CONNECT THE CAR WORLD, WE HEARD ABOUT DATA THAT IS CURRENTLY COLLECTED, ALTHOUGH NOT NECESSARILY TRANSMITTED BY THE THE VEHICLES.

WE TALKED ABOUT THE CHALLENGES OF SECURITY AND PRIVACY IN THE SPACE SUCH AS THE FEASIBILITY OF NOTICE AND CONSENT, THE TRADEOFF BETWEEN UTILITY AND SAFETY.

WE TALKED ABOUT PLATFORM MANAGEMENT AND SECURITY BY

DESIGN AND INDUSTRY THAT HAS NOT REALLY FOCUSED ON THESE BEFORE. FINAL APPLY IN OUR LAST PANEL WE LEARNED THAT MANY OF THE PRIVACY CHALLENGES INVOLVING INTERCONNECTED DEVICES ARE IN SOME WAYS NOT NEW ONES BUT IN OTHER WAYS PRESENT SPECIFIC CHALLENGES.

FOR EXAMPLE WHEN IT COMES TO INTERNET OF THINGS HOW CAN WE PROVIDE EFFECTIVE NOTICE WITH INTERCONNECTED DEVICES THAT DON'T HAVE THE SCREENS AND WHEN DATA IS BEING COLLECTED PASSIVELY PERHAPS WITHOUT A CONSUMER'S KNOWLEDGE.

WE DISCUSSED WHETHER THE PRIVACY ISSUES RAISED BY THE INTERNET OF THINGS WILL REQUIRE RETHINKING THE TRADITIONAL FRAMEWORKS THAT WE HAVE HAD FOR PROTECTING PRIVACY.

WHAT IS CLEAR HOWEVER IS WHETHER WE'RE TALKING ABOUT HOME AUTO MEDICATION SYSTEMS, CONNECT THE FITNESS DEVICES, CARS OR OTHER THINGS IN THIS INCREASINGLY CONNECTED WORLD, INDUSTRY MUST STEP UP TO ENSURE THAT PRIVACY AND SECURITY SAFEGUARDS ARE BAKED INTO THE PRODUCTS AND SERVICES THAT WE TALKED ABOUT TODAY.

THESE PROTECTIONS INCLUDE PRIVACY AND SECURITY BY DESIGN.

I THINK THERE'S LOTS OF AGREEMENT ABOUT THAT AND ALSO TRANSPARENCY SEE CHOICE IN SOME FORM ALTHOUGH WE'RE GRAPPLING WITH WHEN AND HOW TO PROVIDE THESE VALUES IN THIS CONTEXT.

THIS IS THE BEGINNING OF OUR CONVERSATION WITH CONSUMERS AND INDUSTRY ON THE IMPLICATION OF THE INTERNET OF THINGS.

AS YOU MIGHT HAVE GUESSED OUR NEXT
STEP WILL NOT BE TO PROPOSE
REGULATIONS.

THE SUSPENSE IS DONE I GUESS,
BUT TO DO A REPORT WHICH WE LIKE
TO DO TO CAPTURE ALL OF THE
GREAT THINGS THAT WE LEARNED
TODAY INCLUDING RECOMMENDATIONS
THAT WE HEARD ABOUT DIFFERENT
TYPES OF BEST PRACTICES THAT
COULD BE EFFECTIVE IN THIS SPACE
AS WE MOVE FORWARD.

AND WITH THAT IN MIND WE INVITE
EVERYONE WHO HASN'T ALREADY TO
SUBMIT PUBLIC COMMENTS TO US AT
IOT@FTC.GOV AND WE'RE KEEPING
THAT OPEN UNTIL JANUARY 10,
2014, NOT 2015.

AND THE MORE INFORMED WE
PROSECUTE, THE MORE HELPFUL WE
CAN BE IN CONTINUING THIS
CONVERSATION AND PROMOTING
SECURITY PROTECTIONS THAT ARE
COMPATIBLE WITH INNOVATION.
WE'LL POST YOUR COMMENTS ON THE
WORKSHOP PAGE AT FTC.GOV.
THANK YOU VERY MUCH FOR COMING.
[APPLAUSE]