



CONNECTED TEAMS, CONNECTED CODE, AND THE CONNECTED DEVICES

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AGENDA

- Every Business is a Software Business
- Challenges
- Complex Delivery Pipeline
- How Others Do It?
- Introduction to Electric Cloud

EVERY BUSINESS IS A SOFTWARE BUSINESS

Embedded/IoT



Mobile



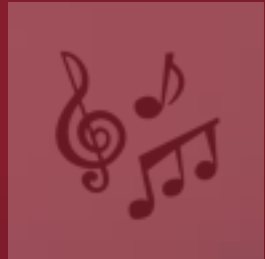
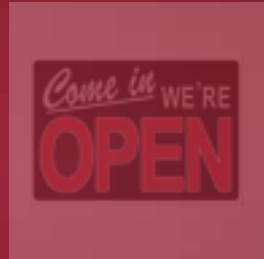
Enterprise, Web/IT



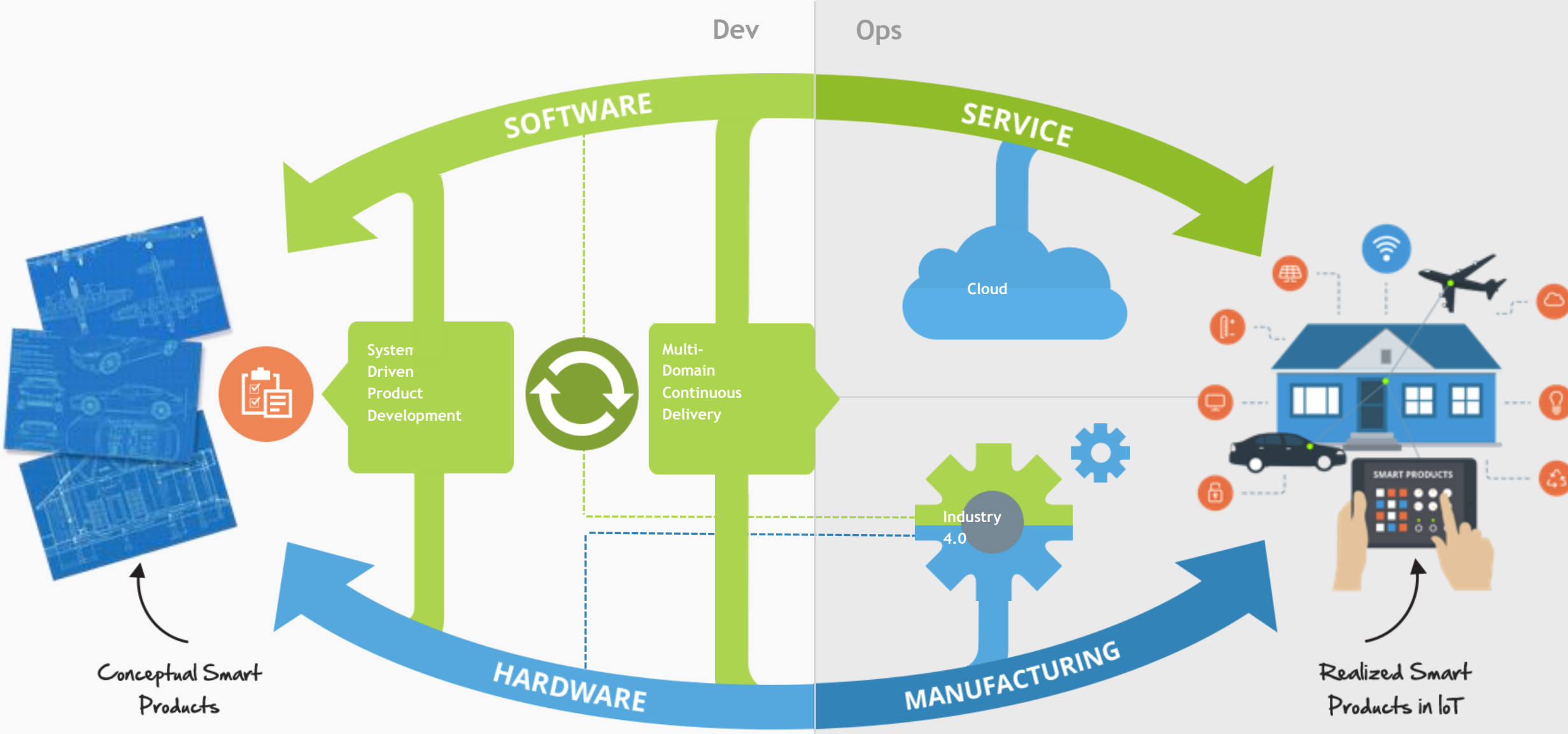
“Software is eating the world”
Marc Andreessen, Aug 2011

“ Software is now
the primary driver of innovation
& disruption.”





IOT IS THE NEW EMBEDDED





all 4G

12:45 AM

100%



68°F / 20°C

Living room

Statistics

Temperature

Setting

Smart Home console



Smart TV

ON:1

OFF:0



Air Conditioner

ON:2

OFF:0



Light Setting

ON:0

OFF:3



Robot Cleaner

ON:1



Smoke Sensor

ON:0

OFF:0



IOT IS EVERYWHERE. HOW DOES THAT CHANGE OUR WORLD?

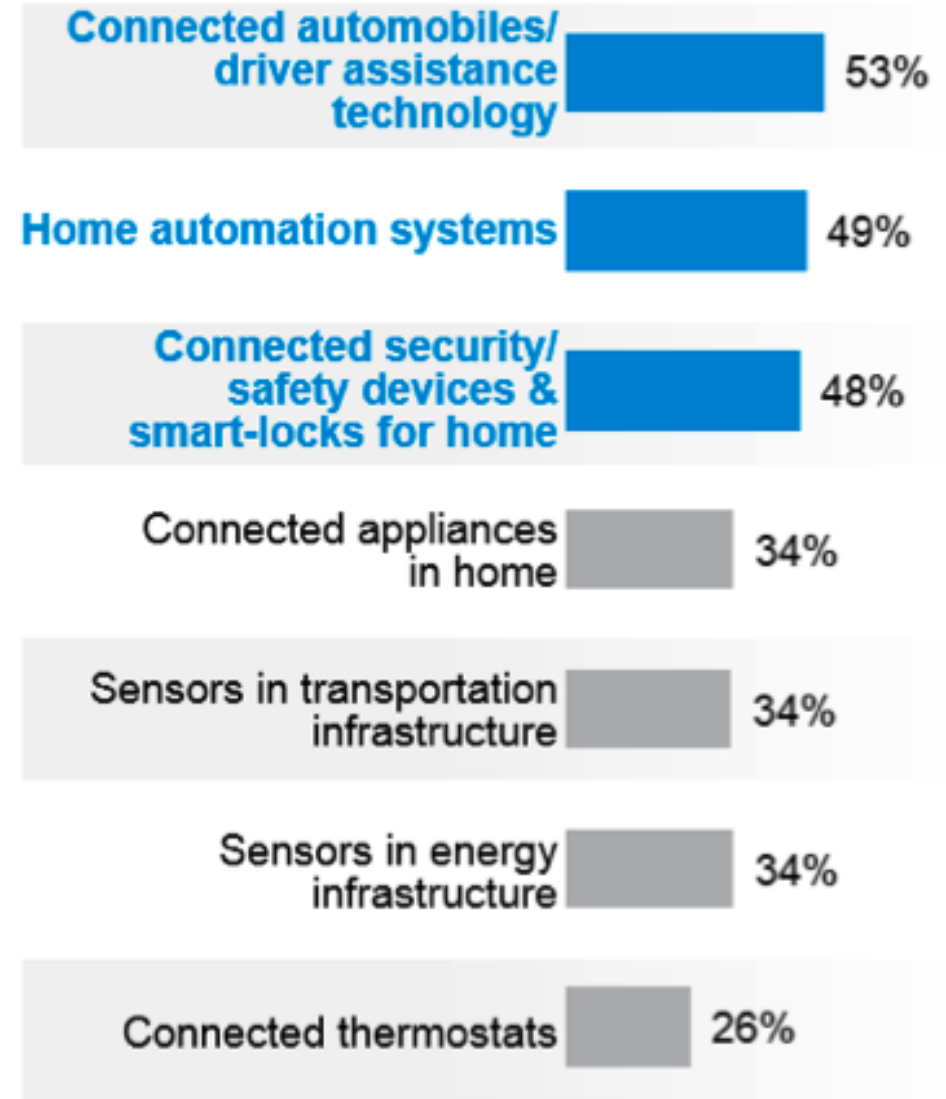


- 1. Accessible from anywhere
- 2. Automatically optimizes for cost/comfort
- 3. Automatically adjusts based on “presence”
- 4. Provides individual and aggregate reporting
- 5. Updates delivered continuously OTA



WHAT ARE PEOPLE WORKING ON?

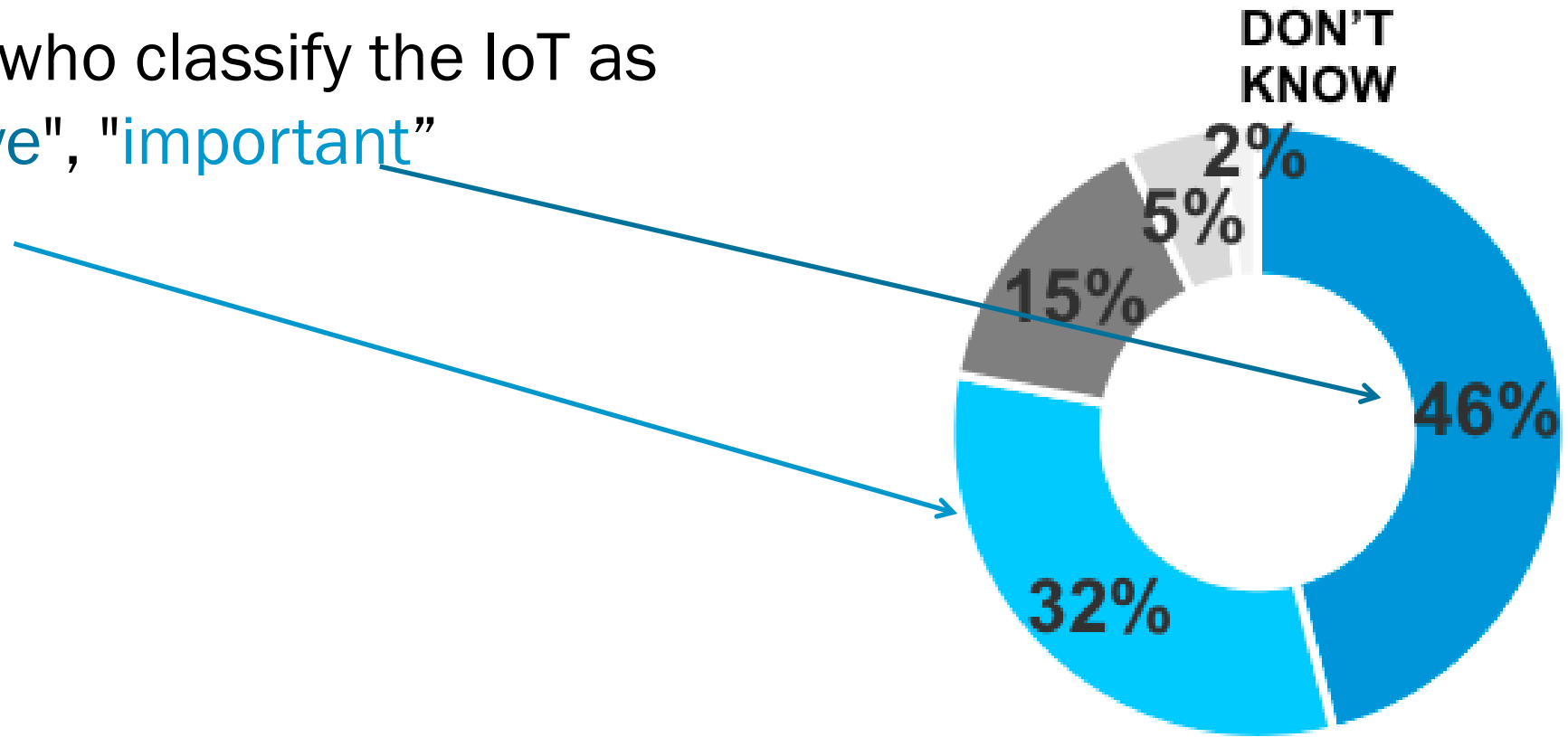
Types of connected devices respondents say will have the largest market opportunity in five years.



HP online survey of 610 developers and IT, 2015

WHAT DO DEVELOPERS THINK?

Respondents who classify the IoT as "transformative", "important"



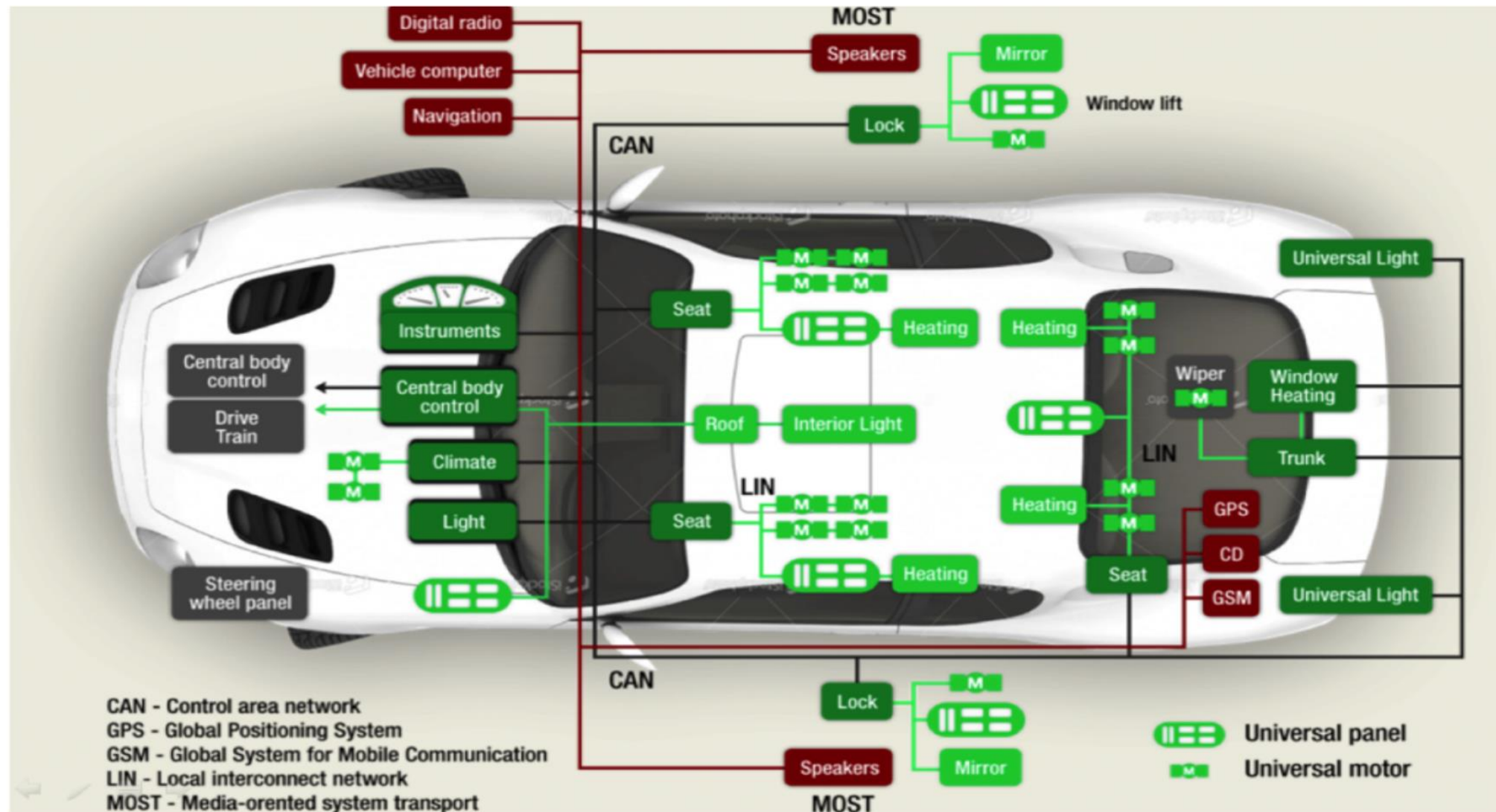
HP online survey of 610 developers and IT, 2015

26B by 2020

Gartner Prediction
on the Internet of Things
(excluding PCs, tablets, phones)



TODAY'S CARS HAVE OVER 300M LINES OF CODE



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Software update

Firmware update required. Download new update? Downloading via mobile networks may incur additional charges. If possible, download via Wi-Fi network. You will be able to use your device during download

Update details (31.17 MB)
Improved stability.

Later

Wi-Fi

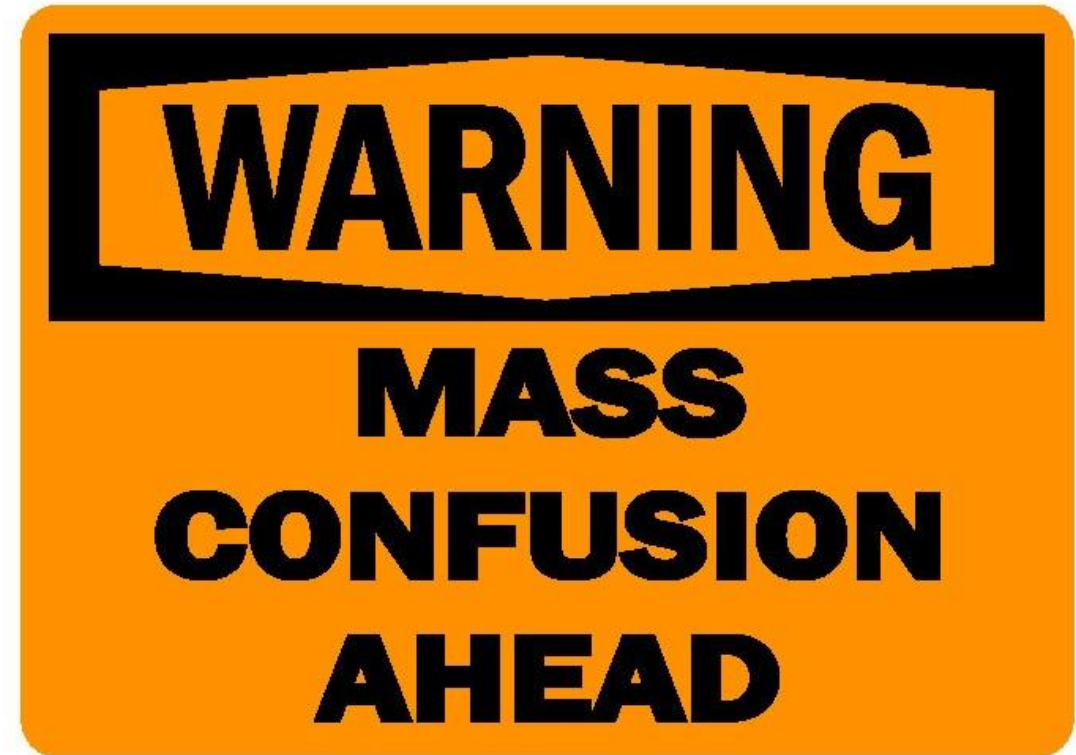
Download

**Demand for More Frequent,
OTA Updates**

Logistics and Coordination of Different Engineering teams (+Minimizing Friction)



Long and Challenging Integration Test Cycle





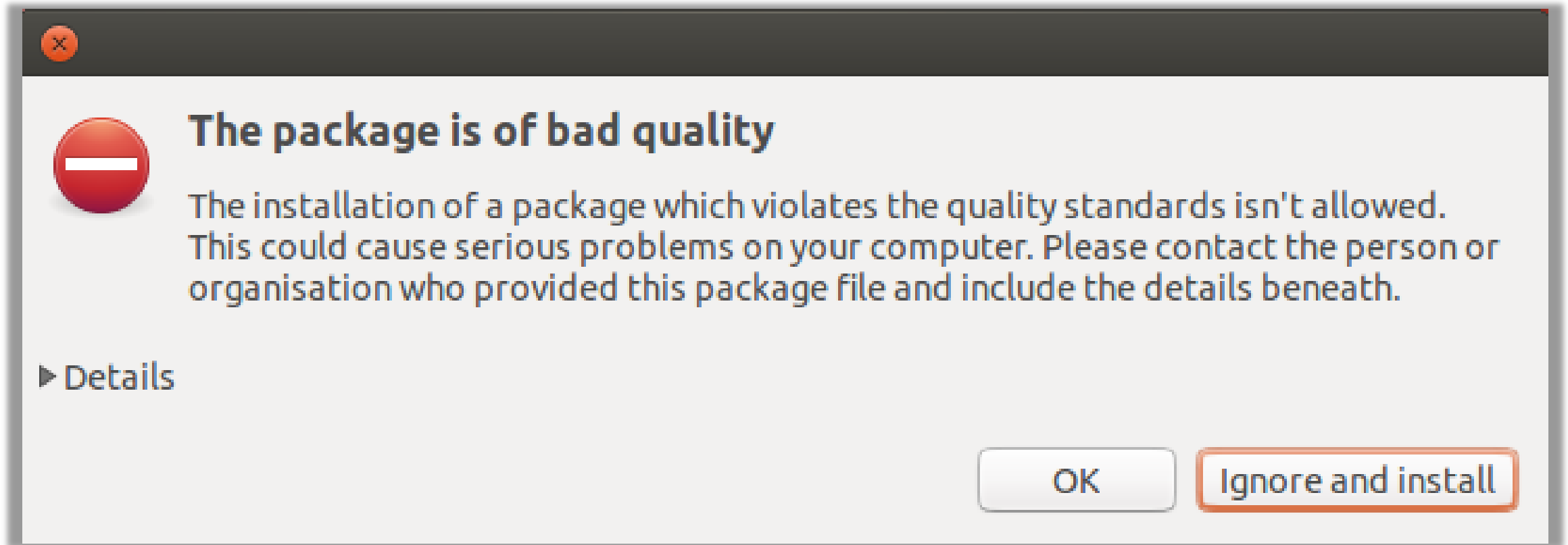
Skyrocketing Infrastructure Costs

Continued Focus on Reducing Development Costs and Cost Overruns



The image shows the interior of a SpaceX Dragon spacecraft. The top half of the image displays four rows of seats, each with a yellow seat and a black harness. The seats are arranged in a 2x2 grid. The bottom half of the image shows the control panel, which features four large touchscreens displaying flight data and a central control console with various buttons and a joystick. The floor is covered in a metallic, diamond-patterned mesh. A semi-transparent white banner with blue text is overlaid across the middle of the image.

Visibility and Compliance Concerns



Quality Issues

CUSTOMERS WANT VALUE. QUICKLY.



“ In the age of the consumer, empowered buyers demand a new level of customer obsession ”



Amy DeMartine, Forrester

ARE WE THERE YET?



“Are you able to deliver new software to production as fast as the business demands?”



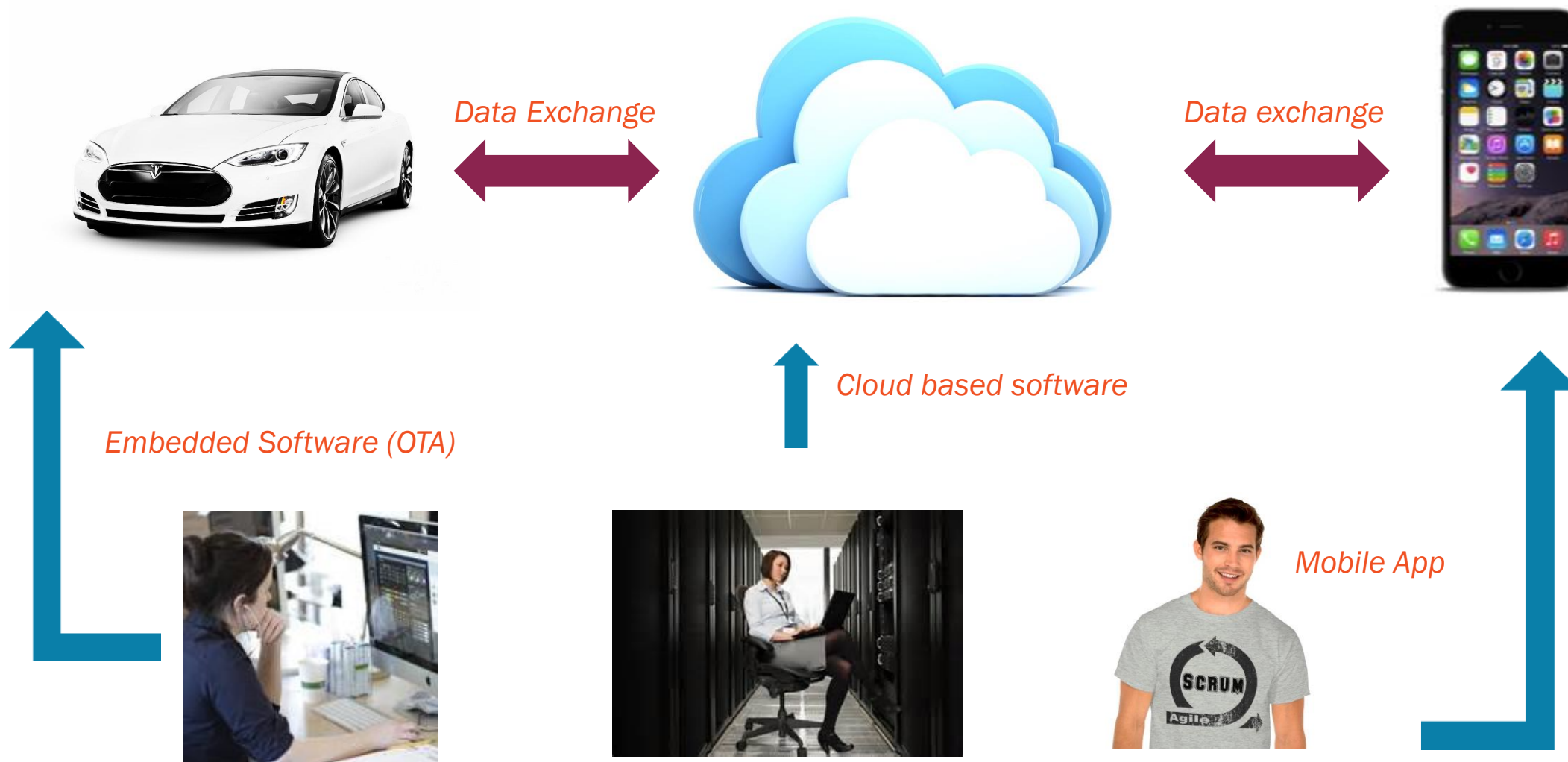
■ No
■ Yes

Based on a 2015 survey of 90+ IT Managers, Directors, Sr. Directors and VPs,
Electric Cloud and Forrester Research Survey

AGENDA

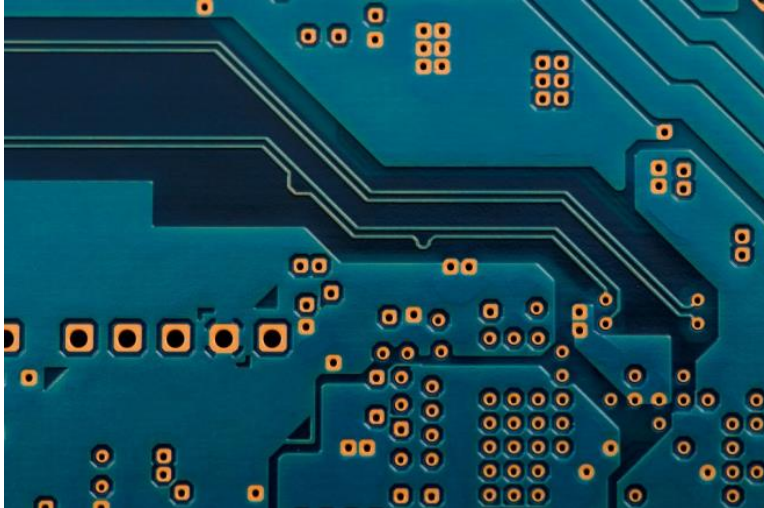
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AGILE DELIVERY OF IOT SERVICES



THREE APPLICATIONS, ONE USER EXPERIENCE –

DIFFERENT TEAMS, DIFFERENT TOOL CHAINS, DIFFERENT PROCESSES, DIFFERENT TARGETS



Embedded Software in the Device

- RTOS, C/C++
- Mechatronics
- Model based system development
- Simulation in the loop, hardware in the loop
- PLM, ALM, CD
- Over the Air Update



Big-data backend app

- Linux, Windows, Java, C/C++
- Big Data
- Agile Development Methodology
- ALM, CD
- Data Center Deployment



Mobile app for end-user controls

- SaaS platforms and services (GitHub, SauceLab, AppDynamics, etc.)
- (Extreme) Agile Development Methodology
- ALM, CD
- App Stores (Apple and Android)



CONNECTING
IT ALL

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- Shared Goals
- Can-Do-Culture
- Self-Awareness
- Expectations
- Measure-ability
- Technology

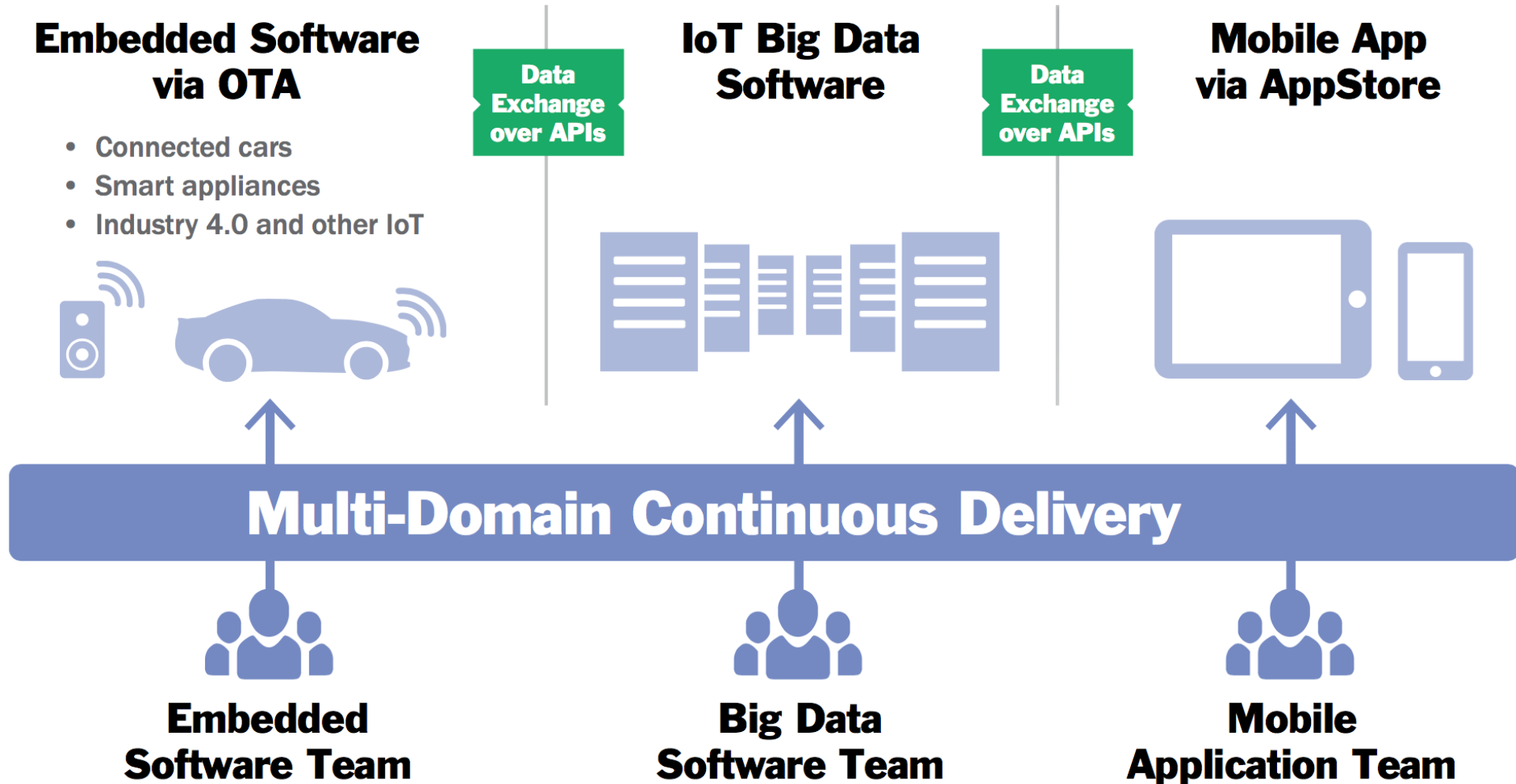


- Automate!
- Build Quality In
- Done Means Done
- ~~It Worked in Dev...~~
- Shrink Cycle Times
- Keep Improving

BEST PRACTICES:

- End-to-End Visibility and Traceability:
 - Connect and orchestrate PLM, ALM, CD, OTA workflows
 - Integrate data of all product components into single EBOM
 - Global team visibility
- Accelerated Delivery:
 - Remove error-prone, labor intensive manual tasks and transitions or hand off among hardware, software, and delivery teams
 - Reducing Design-to-Deliver cycles across hardware and software teams
 - Parallelize and accelerate various tasks in elastic private / semi-private cloud
- Predictable Quality:
 - Test integrated systems earlier and more often
 - Consistent build, test, release environment to prevent environmental bugs
 - Accelerated compliance verification and on-demand compliance report

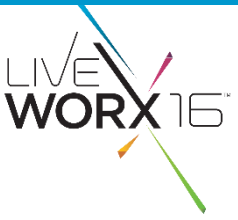
MULTI DOMAINS CONTINUOUS DELIVERY AND APPLICATION RELEASE AUTOMATION



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ELECTRIC CLOUD – DEVOPS RELEASE AUTOMATION



Electric Cloud's [DevOps Release Automation solution](#) reduces the cost and risk of software delivery by automating and accelerating mission-critical software updates from developer check-in through to production release.

WHO DOES DEVOPS? OUR CUSTOMERS

Networking



Mobile Devices



Semiconductor



ISV, Internet & Entertainment



Financial Services



Automotive



Medical Devices



Aerospace / Defense



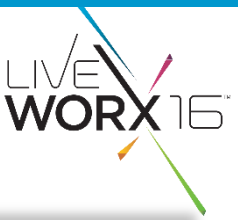
Heavy Industry



Other Systems



THE VALUE OF DEVOPS AND CONTINUOUS DELIVERY



10X
faster TTM



90%
higher quality



100%
cross-team
visibility



74%
reduced costs



75%
improved
utilization



SIEMENS



SPACEX



splunk>

PayPal

Raytheon



Q & A



The image features several colorful geometric shapes, including triangles and lines in shades of blue, green, yellow, and purple, scattered across the background. A large, multi-colored geometric shape is prominent on the right side.

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TAKE A FRESH LOOK AT THINGS

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