OSS & SSO
CONNECTED CAR PERSPECTIVE

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DNA OF CONSUMER ELECTRONICS

4 KEY BUSINESS SEGMENTS = $70 BILLION

APPLIANCES 27%
ECO SOLUTIONS 19%
CONNECTED SOLUTIONS CNS 14%
AUTOMOTIVE & INDUSTRIAL SYSTEMS 32%
OTHERS 8%
Total Sales
$2.4 Billion

PRODUCT SALES

CUSTOMER SALES

Total Sales
$2.2 Billion

Source: FY15 PASA Sales Share
Over 380 million connected cars will be on the road by 2021

Source: OICA, KPMG, ITU, Google Consumer Barometer, GSMA Intelligence, BI Intelligence estimates, 2016
EXLOSIVE GROWTH IN DATA

Exabytes Of Data Produced By Global Connected Cars

1 Exabyte = 1 Billion Gigabytes

Source: Ford: 2013, BI Intelligence: 2015

Just one autonomous car will use 4,000 GB of data/day

Self-driving cars will soon create significantly more data than people—3 billion people’s worth of data, according to Intel

One reason for the car’s appetite is the hundreds of on-vehicle sensors. Cameras alone will generate 20 to 40 Mbps, and the radar will generate between 10 and 100 Kbps, Intel says.

Connected cars will send 25 gigabytes of data to the cloud every hour

A connected car generates up to 256 GB of data per hour. That’s equal to about a dozen HD movies and exceeds the storage capacity of most smartphones today.
LOTS OF SENSORS, MANY VISUAL

- Lidar
- Radar
- Cameras
- Ultrasonics
- ...

THE DEEP LEARNING ALGORITHM

Not based on If/Then logic, just data

Requires huge amounts of data (the more the better, generally)

OEMs need this data to make autonomous driving safer

http://www.rsipvision.com/exploring-deep-learning/
INDUSTRY MUST WORK TOGETHER

1. Crash happens
2. Detailed telemetry uploaded
3. Algorithms learn from crash conditions
4. All vehicles receive updates
5. That crash never happens again

Automous algorithm Tuning
Automotive safety is a human issue, not a company issue and requires an industry approach:

1. Shared protocols, tools
2. Common expectations as vehicles from different vendors share environment
3. Accelerate development on hard problems rather than compatibility issues

Massive amounts of data means carriers are important stakeholders in connected car future:

1. Best practices for data collection
2. Data formats and compression standards
3. Proper prioritization and quality assurance

OSS access for databases and models (not just for code):

1. Defining common use of DL models and databases is equally as important as code

It’s probably too early to require too much standardization today, as much innovation is still underway. Soon development will occur faster, if players follow standards.
THANK YOU

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