



# Electronics & APIs: The Aftermarket's new Bondo™

John Waraniak

VP, Vehicle Technology

[johnw@sema.org](mailto:johnw@sema.org)

John Ellis

Managing Director

[john@ellis-and-associates.com](mailto:john@ellis-and-associates.com)

# AFTERMARKET VEHICLE ELECTRONICS

SOFTWARE-BASED CUSTOMIZATION NEXT-GEN BONDO OLD SCHOOL MODS



# AFTERMARKET VEHICLE ELECTRONICS

## AUTOMOTIVE 3.0 – THIRD REVOLUTION OF AUTO

- Today's Cars and Trucks, as well as the **Auto Industry itself**, are being **Re-Invented, Re-Structured and Re-Envisioned**.
- Cars are **Quickly moving from Stand-alone Mechanical Products, to Smart Electronic Products, to Connected-Smart-Products** and **Major Players in the Internet of Things**.
- **This is Auto 3.0** – The Third Automotive Revolution.
- **FAST, SMART, COOL and CONNECTED.**

# DIGITAL TECH IN THE CAR

CONNECTED CAR REVOLUTION – CARS ARE SOCIAL BY DESIGN

Even Geronimo had a Cadillac.



# DIGITAL TECH IN THE CAR

CONNECTED CAR REVOLUTION – TECHNOLOGY ROADMAP CIRCA 1956 – 1976

What Happened?

Smart Phones came before Smart Cars.

# DIGITAL TECH IN THE CAR

CONNECTED CAR REVOLUTION – CONNECTIVITY IS LIFE TO MOBILE YOUTH

You Can Never be Too Connected.

The Younger You are, the More You Get it.



# DIGITAL TECH IN THE CAR

CONNECTED CAR REVOLUTION – CONNECTIVITY IS LIFE TO MOBILE YOUTH

Racing is **Life**.

Everything **Before** and **After** is just Waiting.



# DIGITAL TECH IN THE CAR

CAR CODE EMBEDDED SOFTWARE AUTONOMOUS SYSTEMS

Product is **King**.

... But **Connectivity, Electronics, Software** Rule.



# DIGITAL TECH IN THE CAR

CONNECTED CAR REVOLUTION – DEMOCRATIZING CONNECTED VEHICLE TECHNOLOGY

Henry Democratized the **First Car** Revolution.

Alan Got the **Connected Car Revolution** Right, First.



# DIGITAL TECH IN THE CAR

EACH GENERATION DEFINES WHAT IS COOL. ART. POWER. ACCESS. FASHION. FUN

You Can't Fake True Cool.

Motor City Applications meet Hollywood and  
Silicon Valley Technology.



# DIGITAL TECH IN THE CAR

AUTOMOTIVE 3.0 – NEW PLAYERS. NEW RULES. NEW SCHOOL MODS



# AFTERMARKET VEHICLE ELECTRONICS

CONNECTED CAR REVOLUTION – 250 MILLION AFTERMARKET OPPORTUNITIES



It's **Not** Just about **New Vehicles**.

An **Old Car** can Take You to **New Places**.



# AFTERMARKET VEHICLE ELECTRONICS

AUTOMOTIVE 3.0 – AFTERMARKET AUTONOMOUS SYSTEMS



Precision Steering



Collision Avoidance



Adaptive Speed  
Control



Advanced Car and Lane Tracking



# Vehicle Software



**Ford Mustang 2011**

**~25 million**  
lines of code



**Ford Taurus 2012**

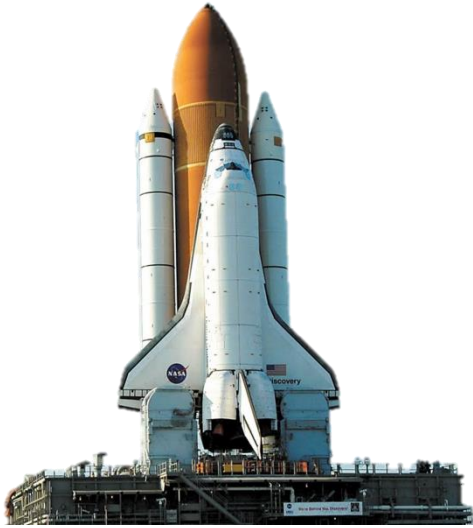
**50+ million**  
lines of code



**Ford 2020**

**100+ million**  
lines of code

# Is that really a lot?



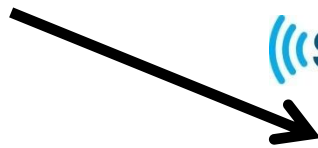
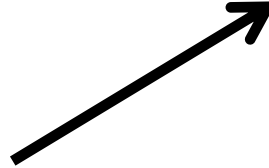
**Space Shuttle**

**500,000**  
lines of code



**Boeing 777**

**3-4 Million**  
lines of code





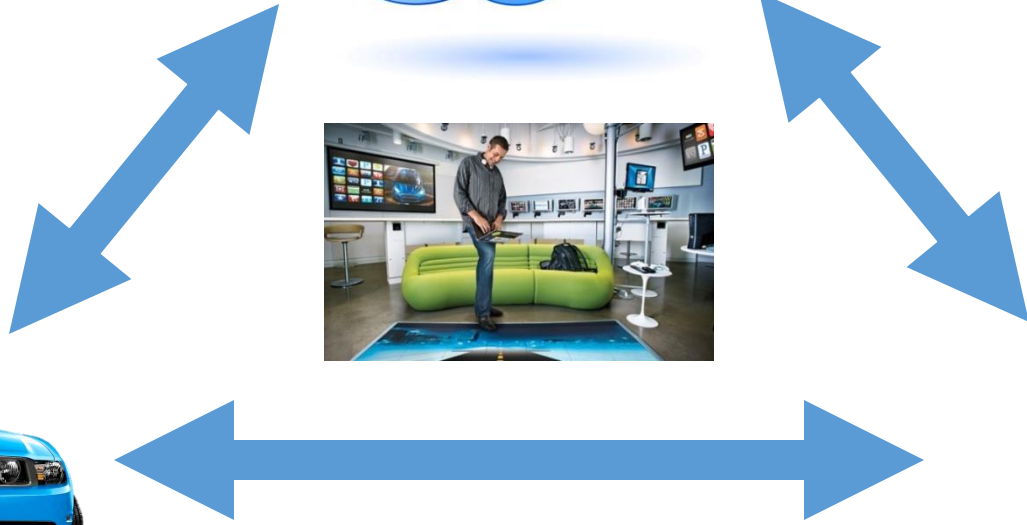




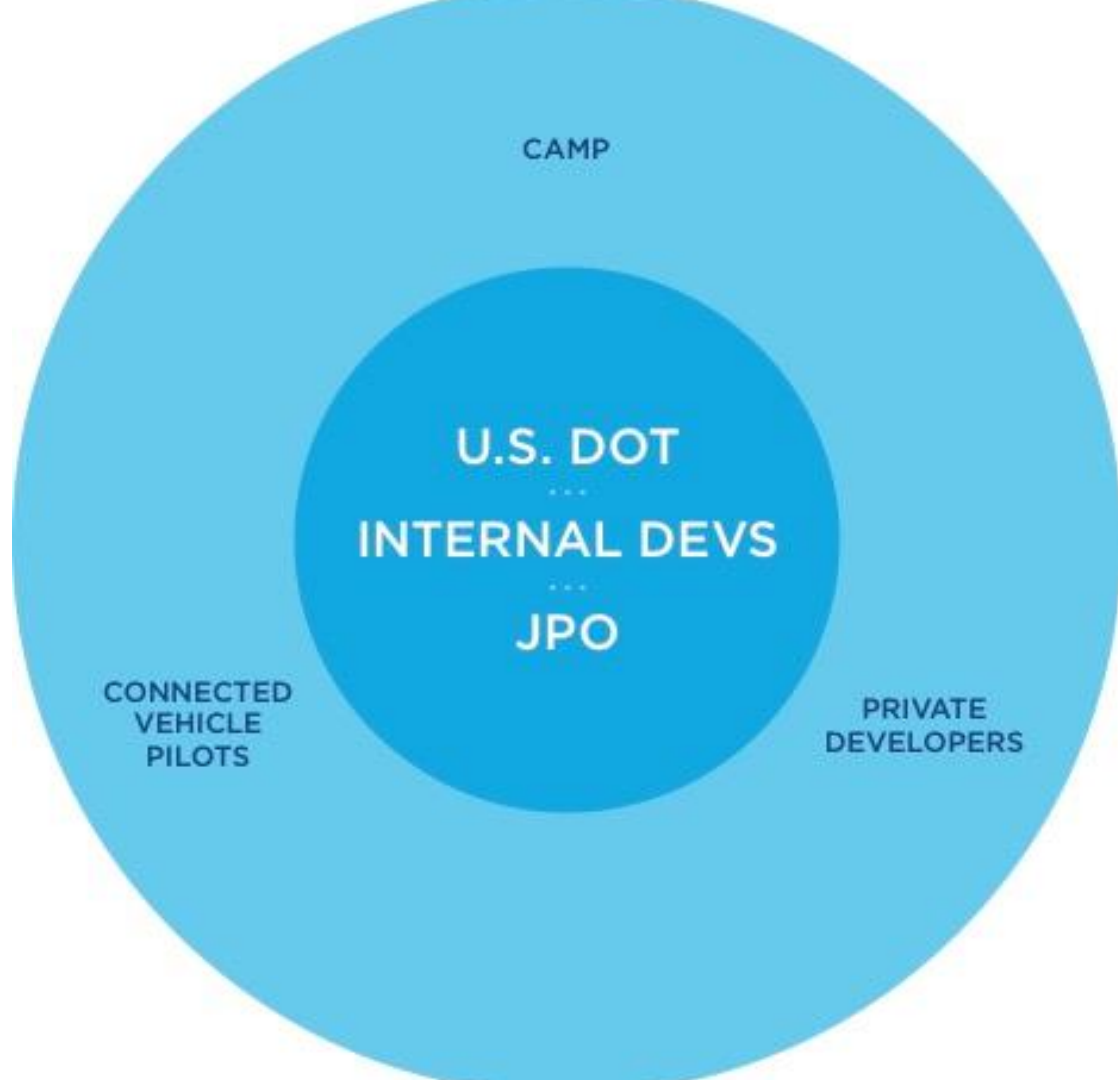
# **Automotive Software Redefined**

**AS == 3 C's + 1 D**

# 3 C's + 1 D



**Why redefine it?**







# Trends in the Industry

**“Kewlness” and “Experience” are  
moving to software**

**Encryption of the bus**

**Lock-down of the electronics**

**FMVSS 150 (proposed)**

# **Vehicle Electronics Program (VEP)**

**Modeled after VDP**

**Bring together existing SEMA resources**

**Introduce new SEMA resources**

**Maintain compliance with FMVSS 150**

**Teach Software!**

# **VEP Logistics**

**Q1 – Initial executive meeting**

**Q2 – Formal program documentation**

**Q3 – Resources in place**

**Q4 – Official launch at SEMA 2015**

**Automotive software is  
teachable.**

**SEMA makes it  
accessible!**

“THE BEST WAY TO  
PREDICT THE  
FUTURE IS TO  
CREATE IT.”





# Thank You!



John Waraniak  
VP, Vehicle Technology  
[johnw@sema.org](mailto:johnw@sema.org)

John Ellis  
Managing Director  
[john@ellis-and-associates.com](mailto:john@ellis-and-associates.com)