Morgan Stanley & Continental - Electronics Webinar
Leading the Way toward Software-defined Vehicles

Ticker: CON
ADR-Ticker: CTTAY
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June 1, 2021
Leading the Way toward Software-defined Vehicles

Complexity and Functional Growth Is Limited by Current Approach

Up2now

Patchwork architecture

› Up to ~100 ECUs, limited computing power
› Functionality isolated in ECUs
› Lots of wires
› Limited cloud-based functionality

Function-defined architecture

› Few High-Performance Computers and Zone Control, significant computing power
› Functions defined by SW (HW abstraction)
› ~50% reduction of wires
› Always connected

User expectation: pleasure, safety and convenience

User expectation: smart IoT device
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New Product Wins for Continental

HPC projects won and in acquisition (#)
Total order intake so far: $\sim$5 bn LTS
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Scalable Compute Platforms – Enabler for Smart IoT Mobility

Distributed

Domain-Centralized

Scalable Compute Platform

Going forward

Up2now

Network Config Functions Network
ECU SAS SW

Network Config

Service Layer
Signal Layer (Legacy)

ADAS
Safety & Motion
Cockpit
Body

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Trust-based Collaboration Models required

Hardware and function coupling – Software treated like hardware

Traditional car

Tier1 ➔ OEM

Function development

Function development stops at SOP¹

Tier2 ➔ Tier1

Middleware
ECU integration

Hardware development

Hardware production

Spare part delivery, garage maintenance services

Tier1

SOP¹

EOP²

EOL³

Software-defined vehicle needs a software platform partner throughout vehicle lifecycle

OEM

Function development

Function development continues after SOP¹

SW supplier

Middleware
ECU integration

Middleware adaption including security and safety support

Maintenance and lifetime security and safety support

New functions and services

HW supplier

Hardware development

Hardware production: Updates/changes possible

Spare part delivery, garage maintenance services

SOP¹

EOP²

EOL³

1 SOP: Start of production, ² EOP: End of production, ³ EOL: End of life

Tier2 ➔ Tier1

Middleware
ECU integration

OEM

Middleware
ECU integration

Middleware adaption including security and safety support

Maintenance and lifetime security and safety support

New functions and services

SOP¹

EOP²

EOL³

Tier1

Hardware development

Hardware production

Spare part delivery, garage maintenance services

Tier2 ➔ Tier1

Hardware development

Hardware production

Spare part delivery, garage maintenance services

Tier1

Truck development

Hardware production

Spare part delivery, garage maintenance services
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We Cover the Entire Spectrum of Customer Needs

60%
Non-differentiating software

Customer needs:
Economies of scale for most competitive cost position

40%
Differentiating software

Customer needs:
Economies of scope to provide best support/expertise

We cover 100%

Continental offers best-in-class software and systems excellence based on:

- Competence
- Technology
- Workflow
- Collaboration
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CAEdge - our full-stack IoT platform architecture solution

Continental Automotive Edge (CAEdge) Platform Architecture

- DevOps Workbench
  - Toolchain
  - Monitoring
  - SW Distribution
  - Analytics
  - Collaboration
  - CI / CD*

- Vehicle Computer
  - Applications / Functions
    - Body & Comm.
    - Powertrain
    - Safety & Motion
    - 3rd party
    - Cockpit / HMI
    - ADAS
    - Digital Twin
    - Predictive Maintenance
    - Cloud Services

- Platform Services
  - Middleware / OS
  - Edge Enabler
  - Simulation and Validation Services

- Core SW
  - Scalable Compute Platform (SCP)
    - Hardware
    - µP / SoC / SoM*

- Vehicle Infrastructure
  - Sensors
  - Zones / ECUs
  - Actuators

System requirements: secure, safe, reliable

Scalable Compute Platform

- HPC
- µP
- Service Layer
- (Legacy)
- 3rd party blocks integrated by Continental
Transformation into Automotive Technologies
Realignment Leverages Synergies Across Multiple Dimensions

Project management
Managing highest complexity across action fields and parties

Horizontal integration
› Combining functions across domains
› Standardized hardware and software platforms to realize better economies of scale and scope

Vertical integration
Capable of providing fully functional system stacks
› Cloud
› Functions/services/apps
› Middleware/OS
› Basic software
› Hardware

Scalability across OEs and platforms
› Most competitive cost position, fastest time to market and attractive value proposition
› Unique portfolio breadth and depth
Summary
Emerge as a Winner of the Automotive Transformation

First in market to realize paradigm shift to new E/E and SW architecture

Monetizing new business models and recurring revenue streams with major growth potential

Competency, technology & workflows enable efficient design, integration & partner across the full stack

Synergies through vertical and horizontal integration
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