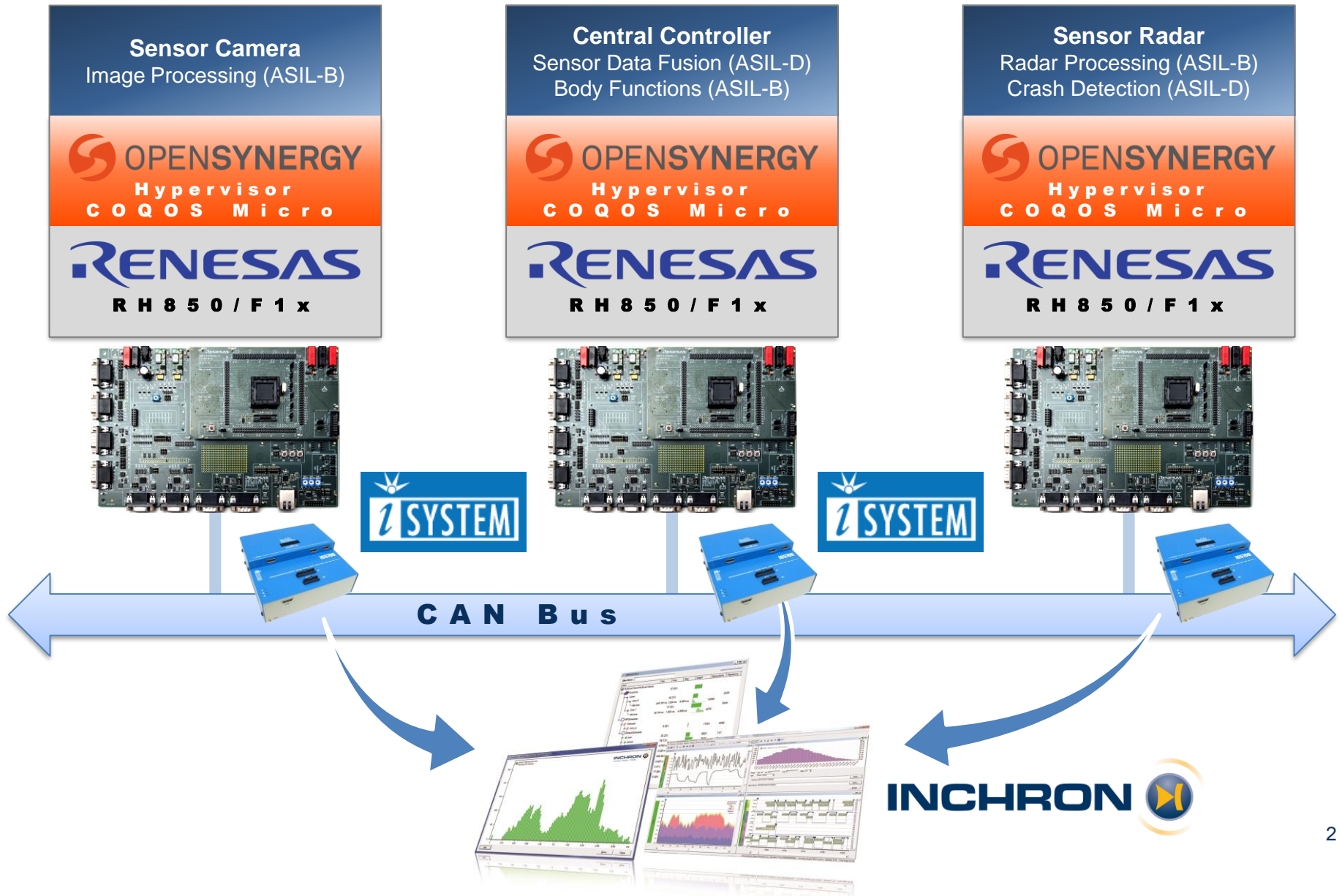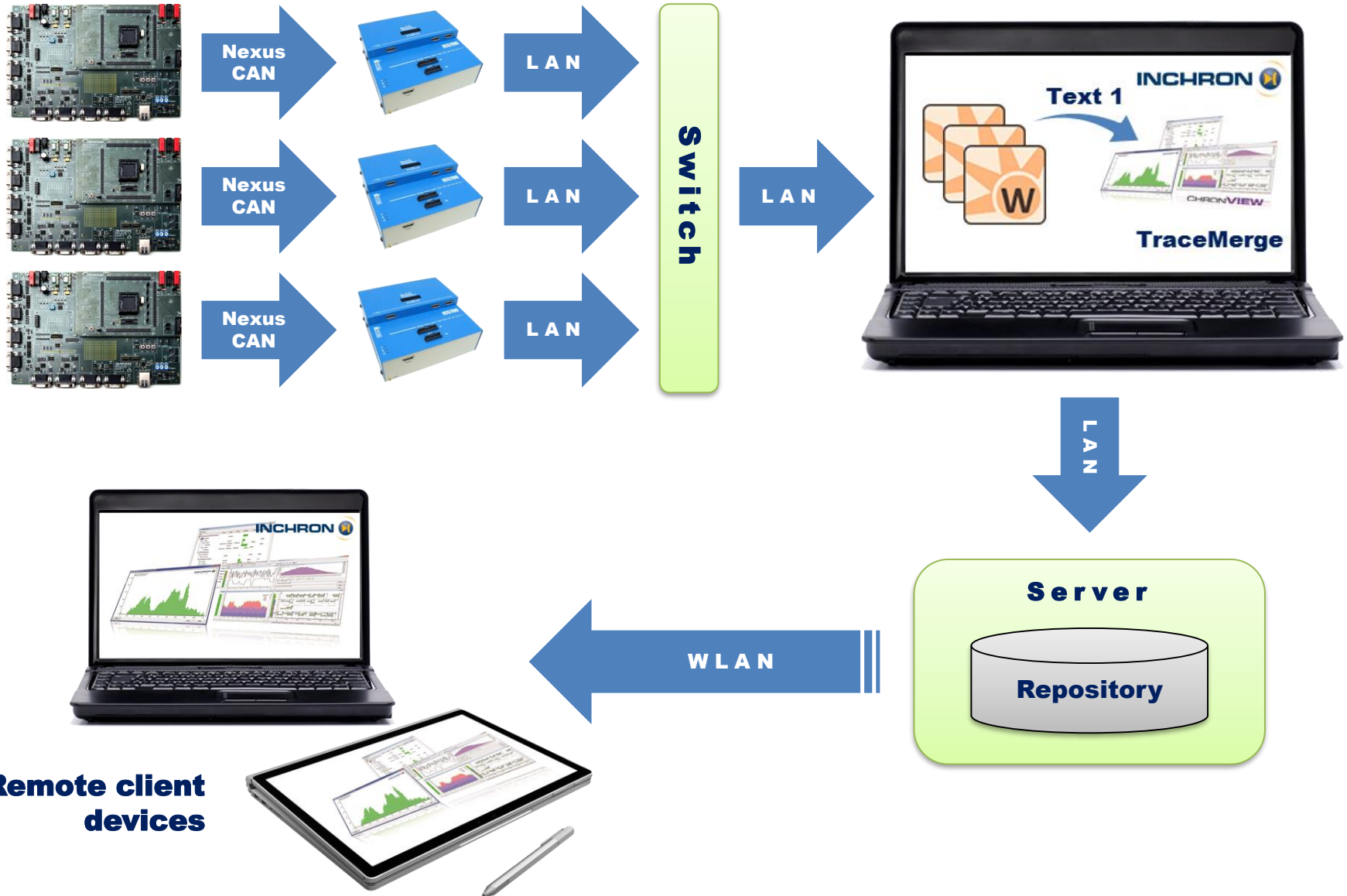Efficient Development of Automotive Embedded Systems
by Renesas, OpenSynergy, iSYSTEM and INCHRON
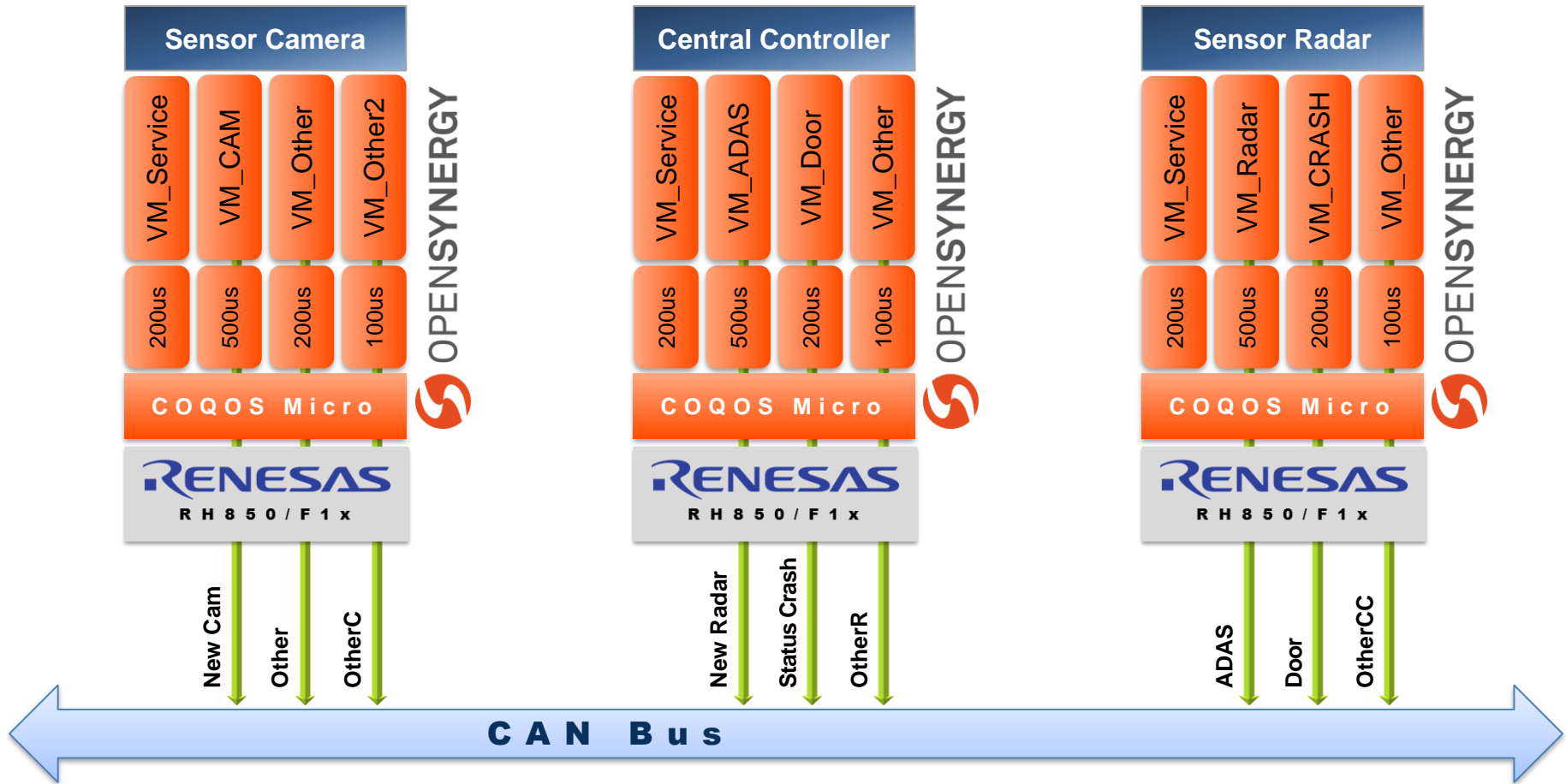
Demonstrator Setup

Data flow

Remote client devices

Enhance the capabilities of your existing trace and debug tool

INCHRON
THINK REAL-TIME

Reliable decisions

Function mapping
Execution order
Partitioning
Activation period
Priority
Start offset
Core affinity
Resource sharing

Intuitive trace visualization

RTOS states
Function nesting
Events
Data values
Rate changes
Data flows
Stack consumption

Efficient analysis and diagnosis
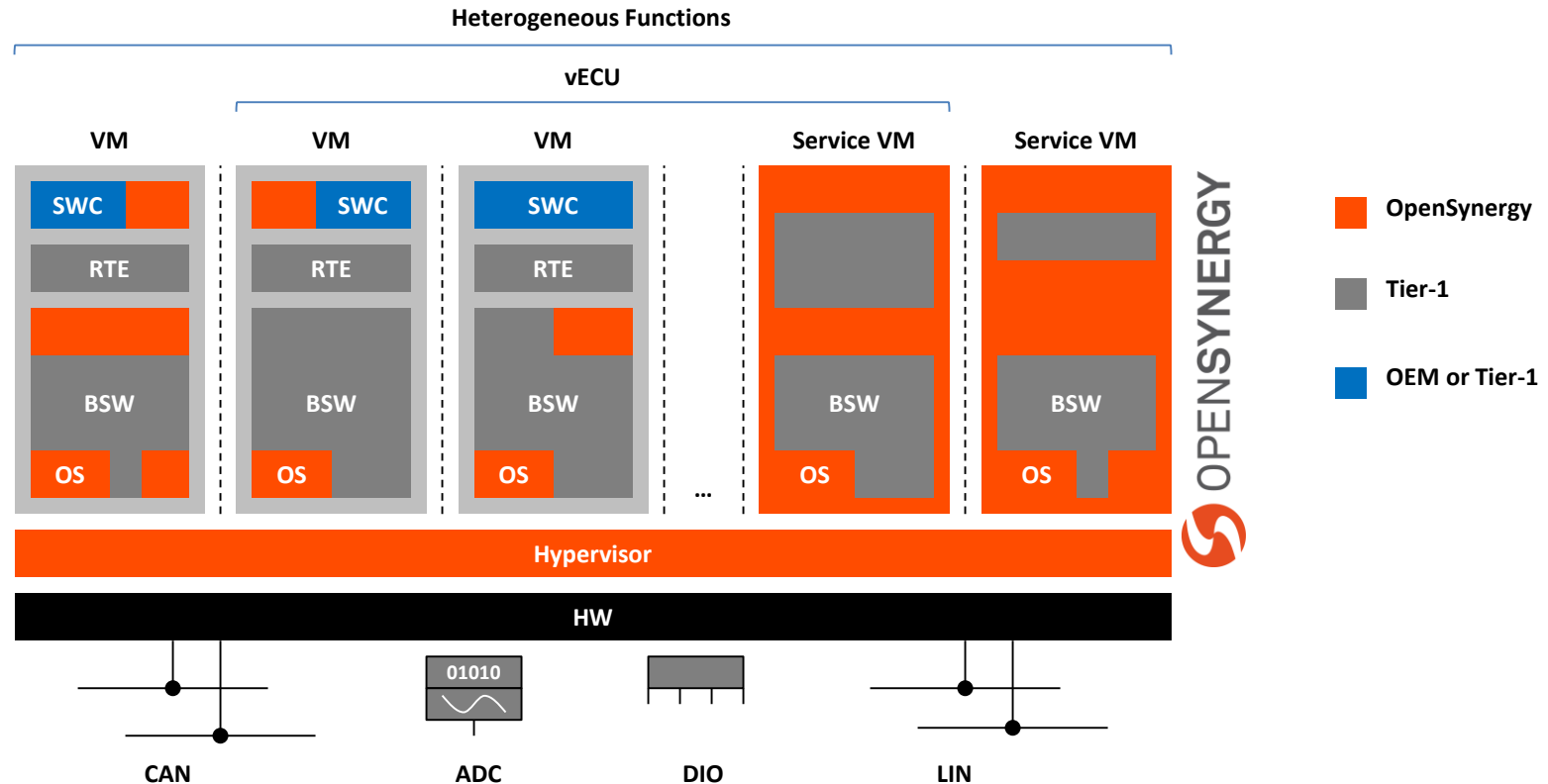
CPU load
Net execution time
Response time
Jitter
End-to-end latency
Data age / loss / reuse
Blocking time

CHRONVIEW™
Check your real-time health

Combined Trace with Event chains
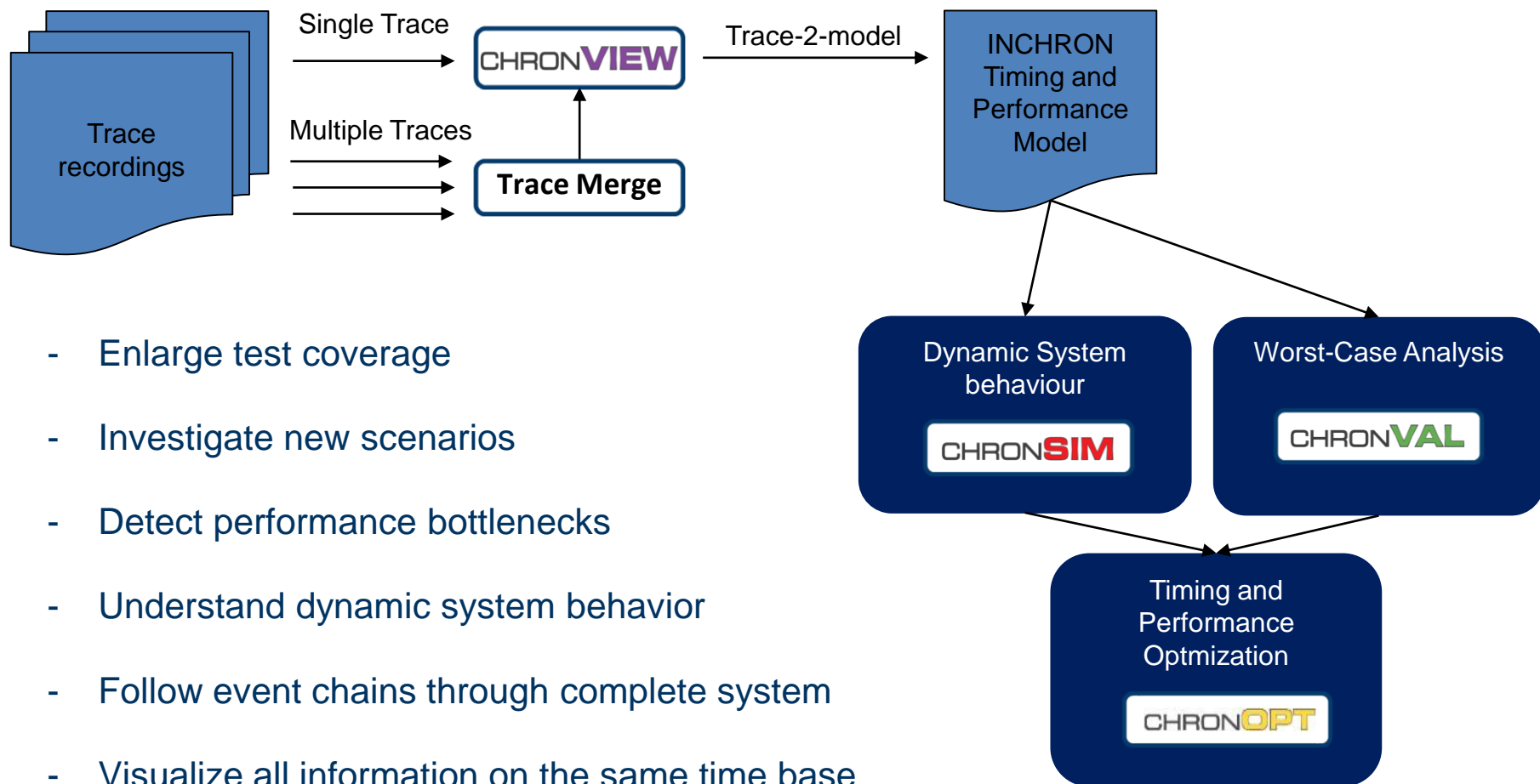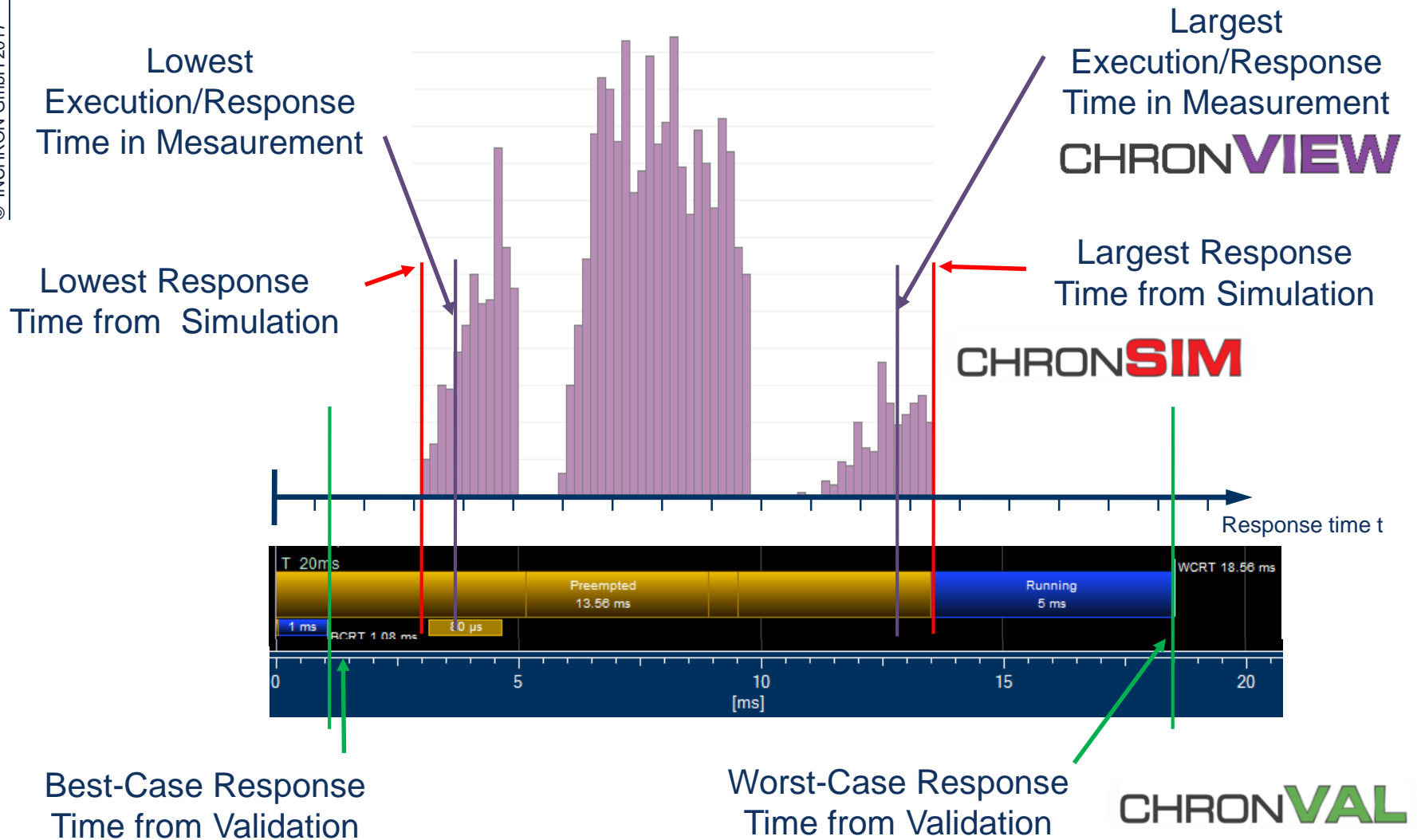
- A **VM (Virtual Machine)** is a software container running on top of the separation kernel. A VM consists of a single OS and user software. 3rd-party BSW, RTE and SWC may be part of a VM to provide system functions.

- The **Hypervisor** (separation kernel) is responsible for the scheduling of the VMs and for the software containment (freedom from interference – ISO 26262).

- A **Service VM** is a specialized VM able to provide basic functionality to VMs (shared access to I/O as an example) as an intra-ECU service.

- The **COQOS Micro** software platform supports the clustering of VMs to enable the concept of vECU. A vECU is able to act as a standard ECU (diagnostics as an example) at the vehicle system level.

- Enlarge test coverage

- Investigate new scenarios

- Detect performance bottlenecks

- Understand dynamic system behavior

- Follow event chains through complete system

- Visualize all information on the same time base

Measurement – Simulation - Validation

Lowest Execution/Response Time in Mesaurement

Lowest Response Time from Simulation

Largest Execution/Response Time in Measurement

CHRON**VIEW**

Largest Response Time from Simulation

CHRON**SIM**

Best-Case Response Time from Validation

Worst-Case Response Time from Validation

CHRON**VAL**

Response time t

T 20ms

Preempted 13.56 ms

Running 5 ms

WCRT 18.56 ms

1 ms

BCRT 1.08 ms

10 µs

Get in touch!