# Handling SDL Complexity
## SDL Developer Conference

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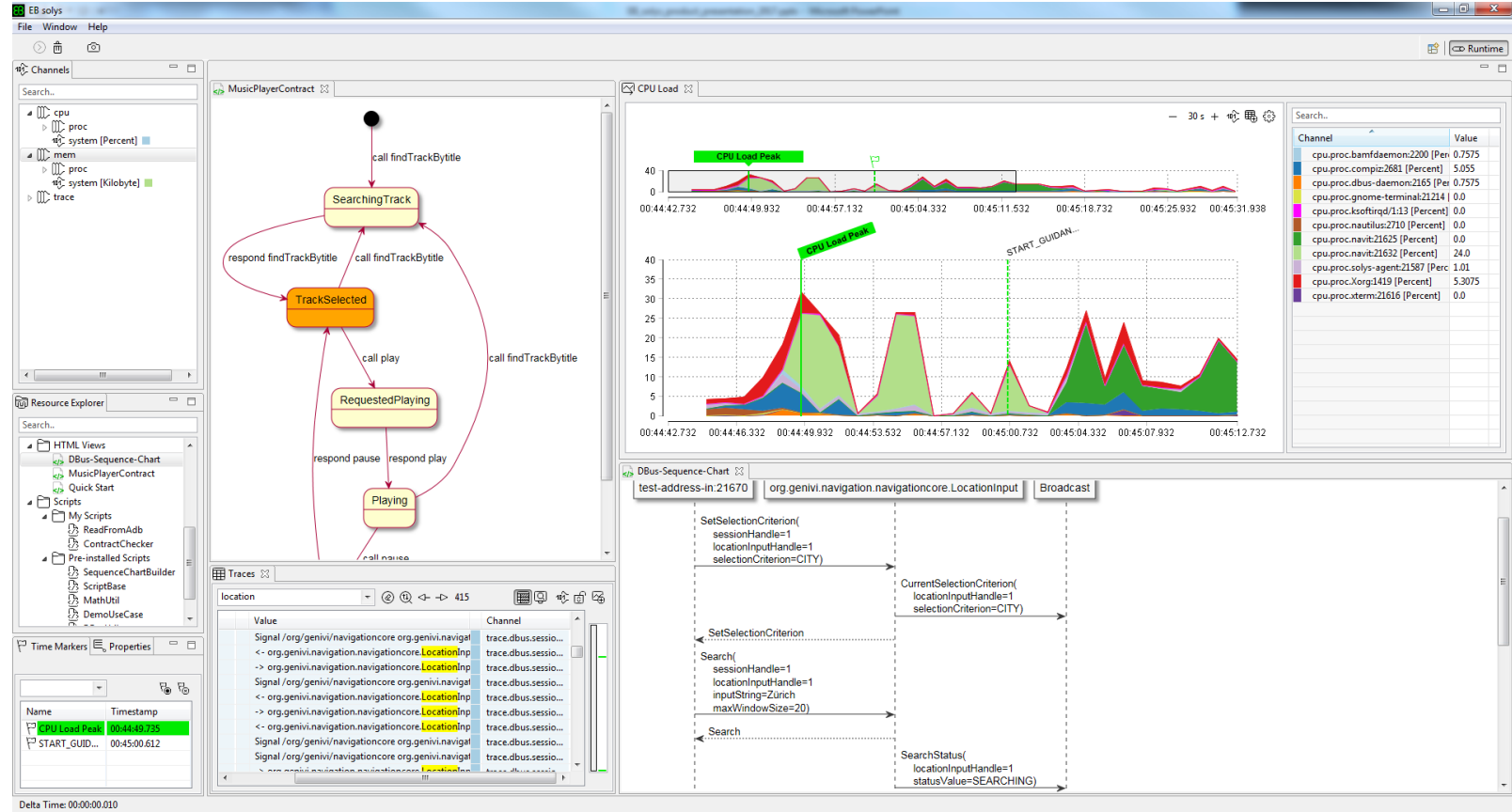**Sep 12, 2017**

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# Levels of Complexity in SDL

**HU**

SDL HMI

Websockets

Policies, OEM-specific

Transport,
App-specific

SDL Core

SDL Protocol, RPCs

Support Components

OS

BT, iAP, TCP, AOA
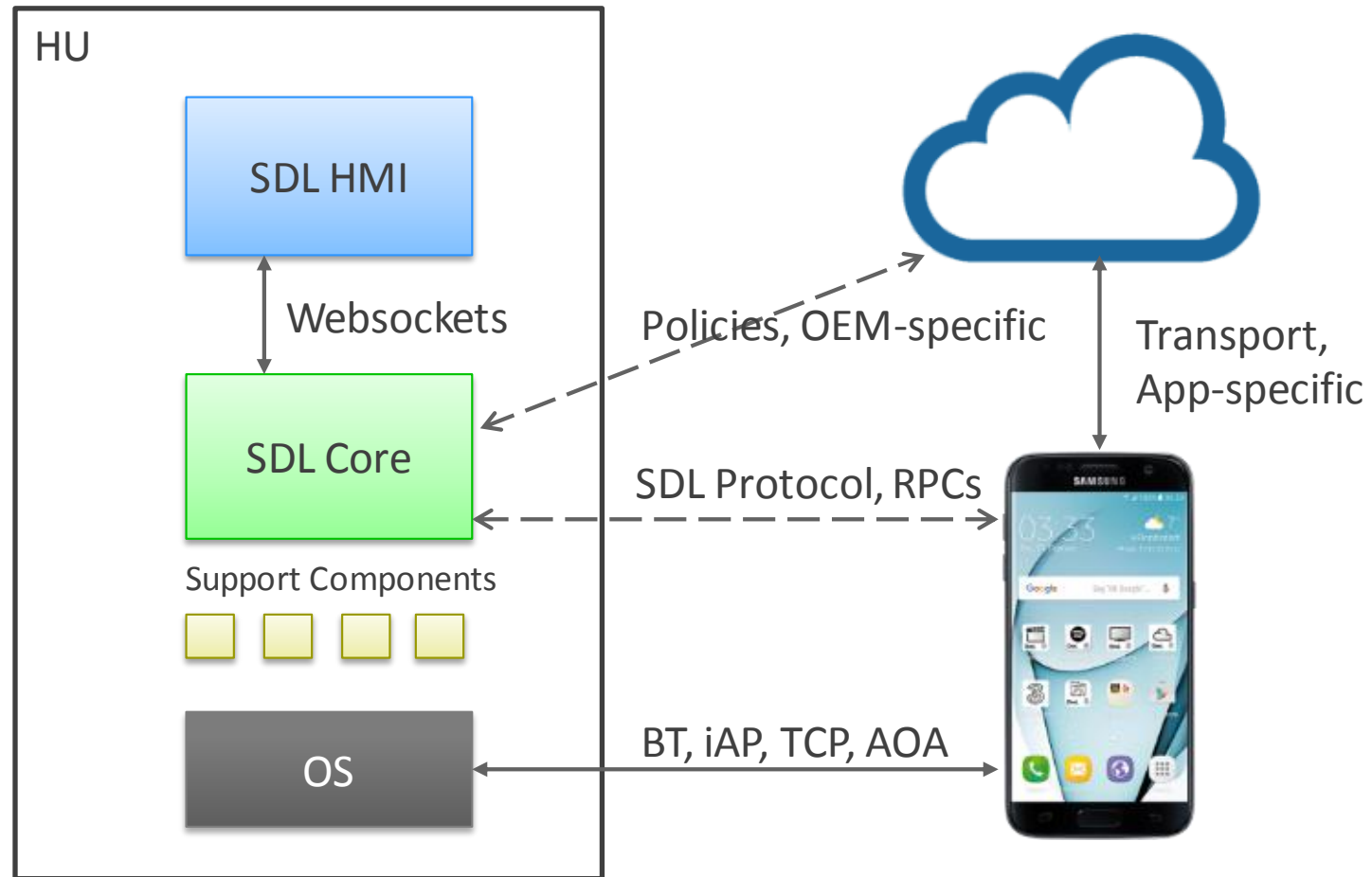
# EB solys

- Combine data from different sources
- Base for
  - System understanding
  - Analysis
  - Debugging
  - KPIs

# Architecture Overview

EB solys consists of a small target agent utility running on a device and an Eclipse RCP based analysis toolchain running on a host PC.

| Target Device |
|:---:|
| target agent |

| Host Environment |
|:---:|
| EB solys |

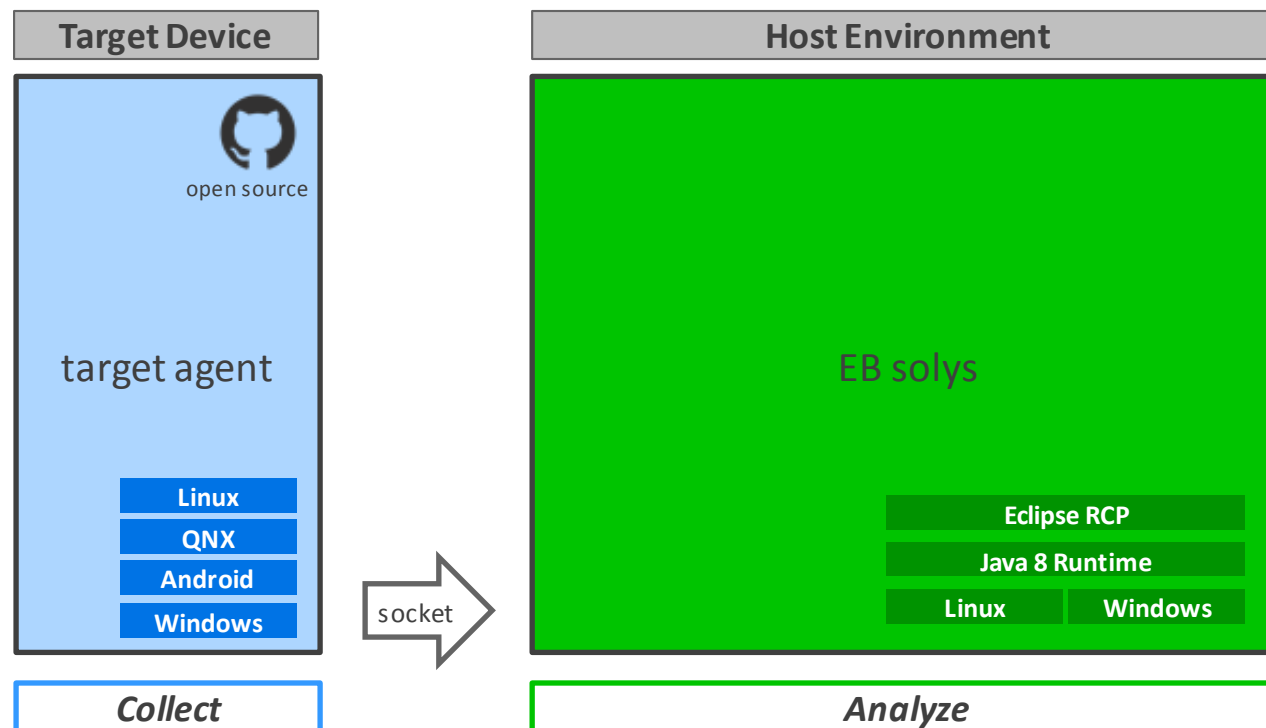The **target agent** is a plugin-driven monitoring service for collecting run-time data.
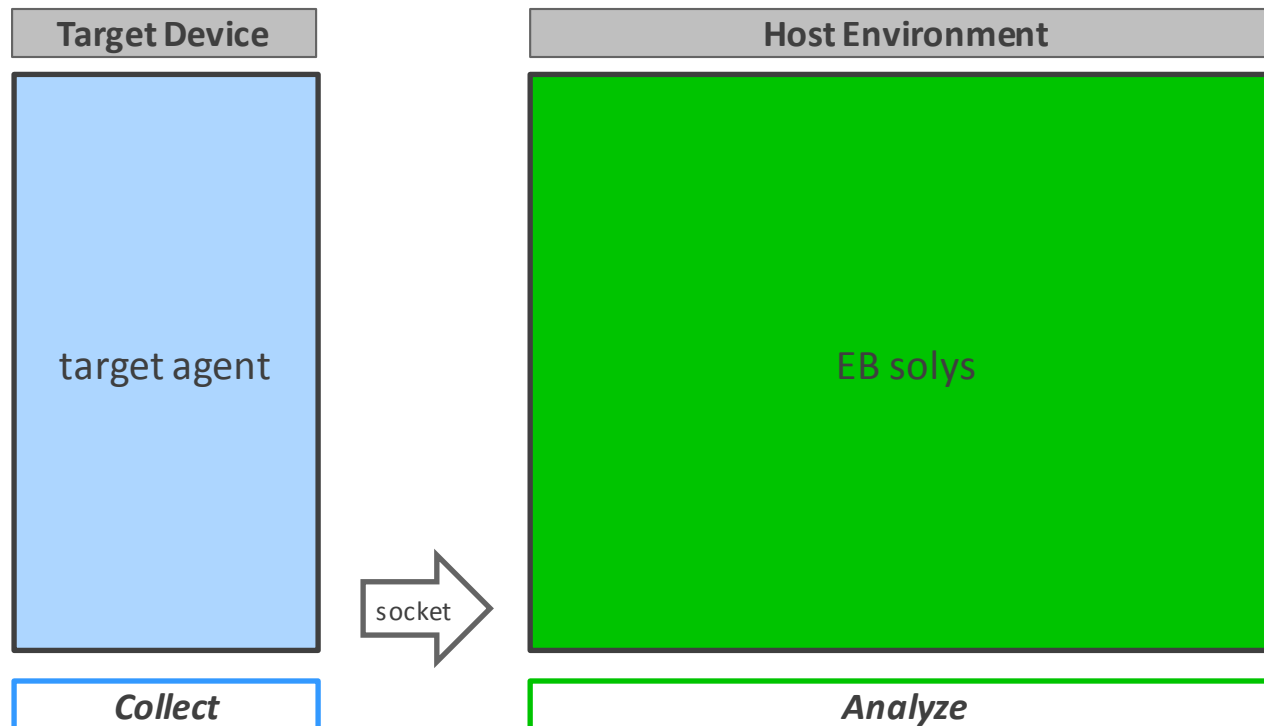
**EB solys** is an application running on an host environment for exploring, correlating and aggregating run-time data.

It can be used with GUI or in a batch mode.

socket

| *Collect* | *Analyze* |

**EB** Elektrobit

# Supported platforms

The **target agent** is open source and runs under Linux, QNX, Android and Windows.
**EB solys** is an Eclipse RCP application, requires Java 8 and runs under Windows and Linux

| Target Device | Host Environment |
|---|---|

open source

target agent

EB solys

| Linux |
| QNX |
| Android |
| Windows |

socket

| Eclipse RCP |
| Java 8 Runtime |
| Linux | Windows |

*Collect*

*Analyze*

# EB solys target agent

Use existing **target agent plug-ins** or **extend** the target agent with your own plug-ins, that retrieves project/system specific data.

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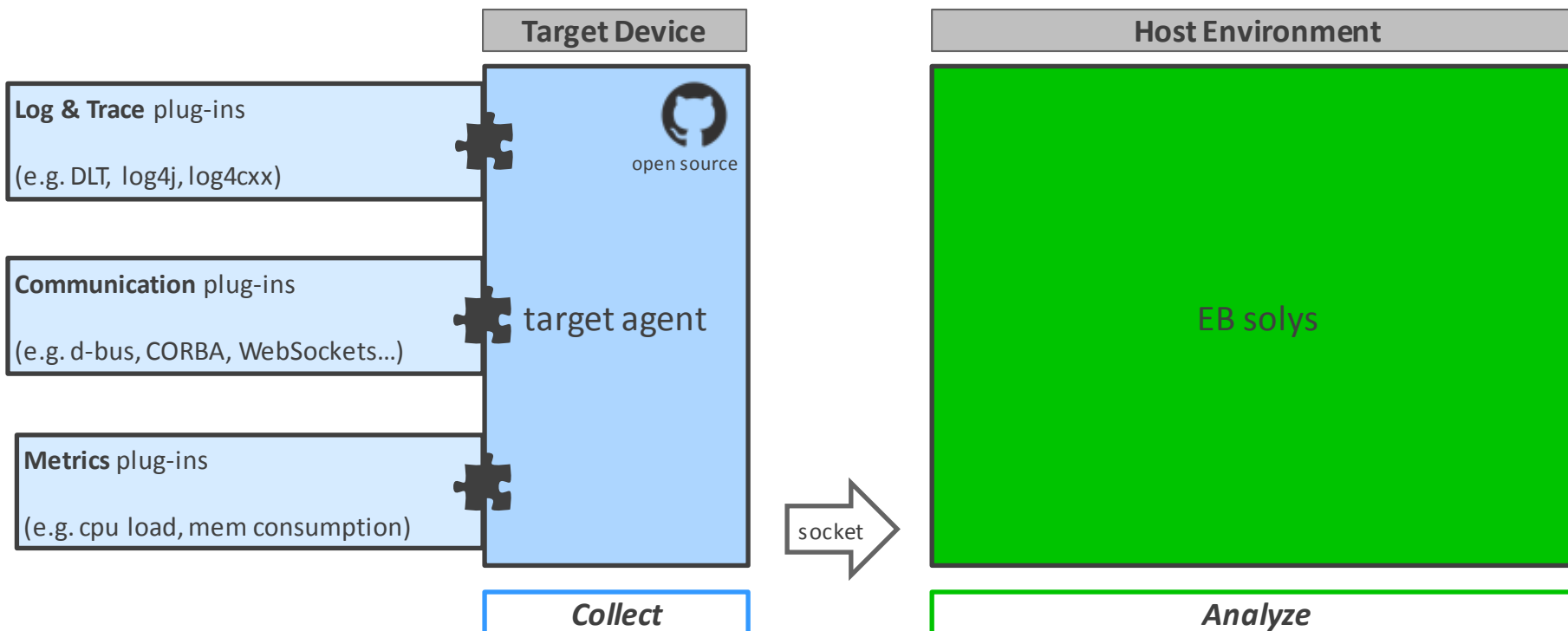
# Programmatic analysis

## Built-in Script Engine

- Based on the programming language Xtend
- Powerful API to access all runtime events and UI resources
- Includes editor with syntax highlighting, code completion, outline, etc.
- Compiles executable scripts in the background on-the-fly
- Integrated into UI widgets by special annotations
- Special filter scripts to be used for complex search in tables
- Executable live and post-mortem
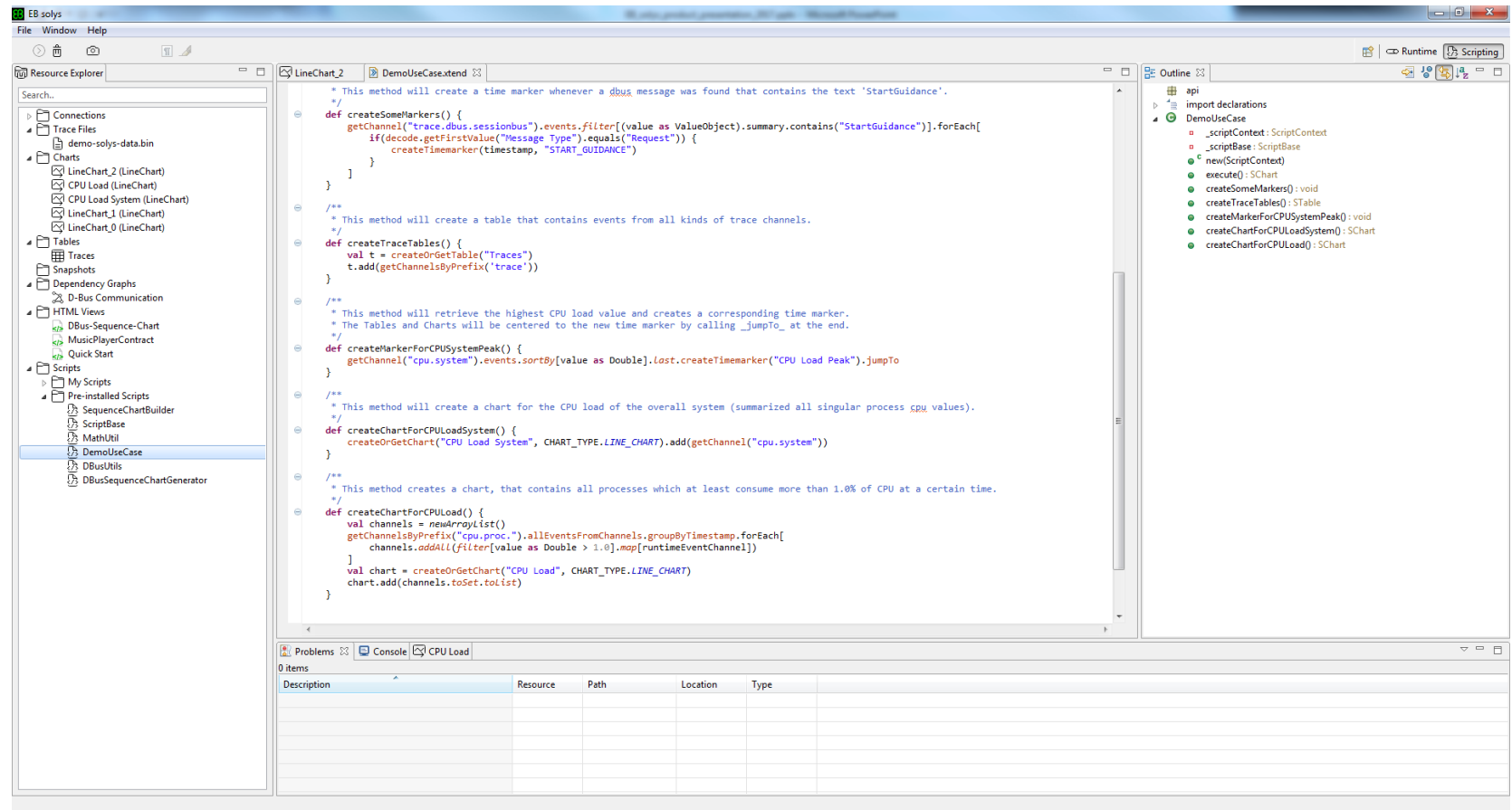
# Distributed systems

## Rationale

Market trends show that automotive software systems are moving into the direction of **service-oriented architecture** on distributed systems over **multiple ECUs** and devices. Observable functionality for the driver will then doubtlessly be implemented as a **distributed software stack,** which is cross-cutting several layers, nodes and technologies by **multiple suppliers**.
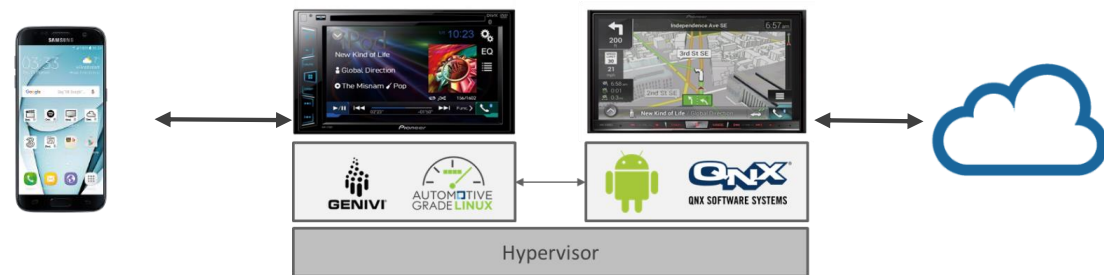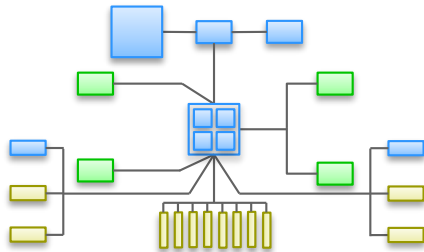


## Feature Description

EB solys is being extended in a way to be able to **follow the data and communication flow through the entire distributed software system**, in order to identify hot spots and difficult to find bugs.

# EB solys & SDL Example 1/3

Set TimeMarker at
interesting data point,
e.g. peak in CPU load

What happened at this
moment in time?

# EB solys & SDL Example 2/3
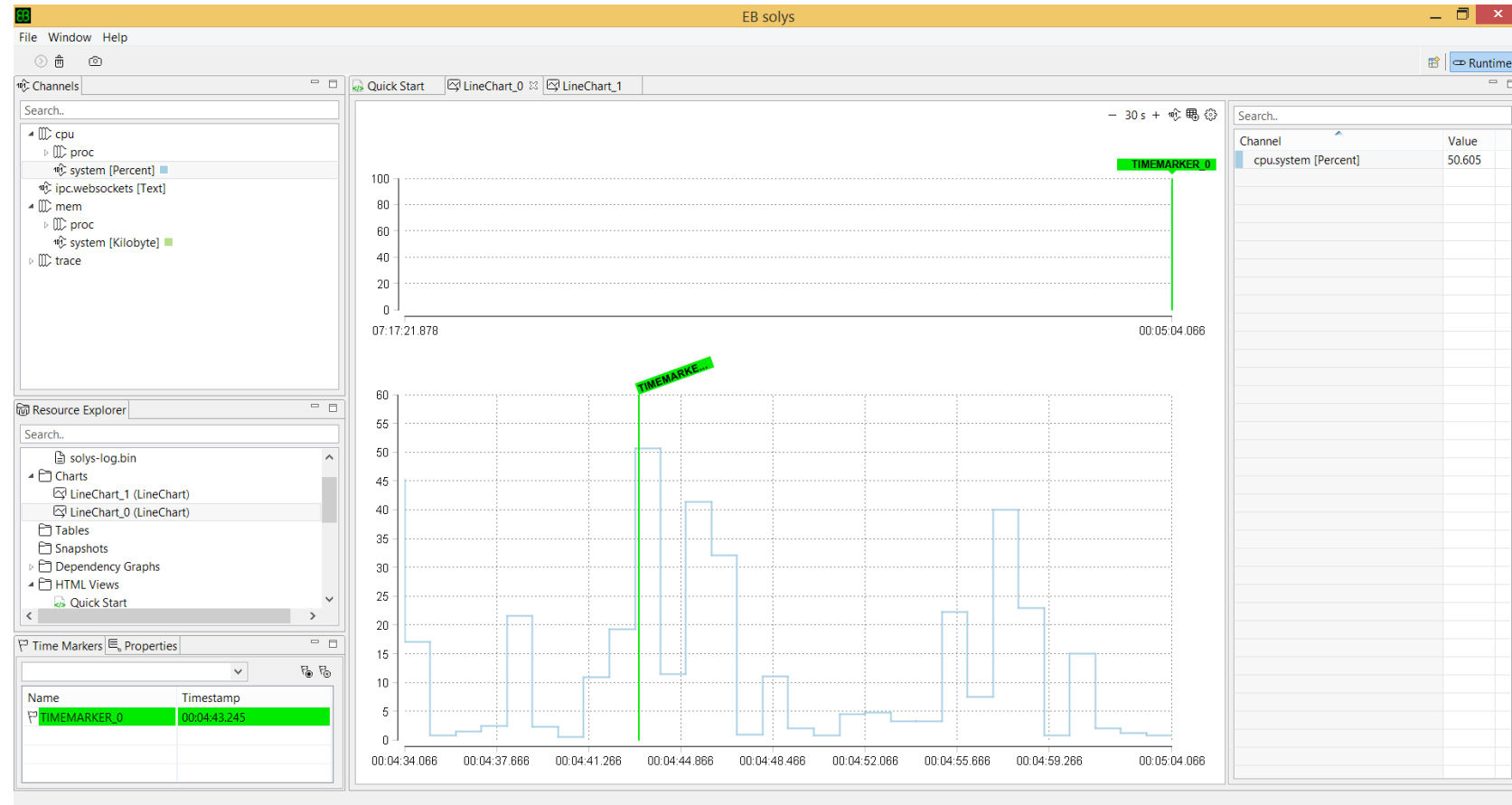
TimeMarker corresponds to
communication between
SDL Core and HMI

What was the communication
flow ?

# EB solys & SDL Example 3/3

Sequence diagram is showing communication flow at high CPU load
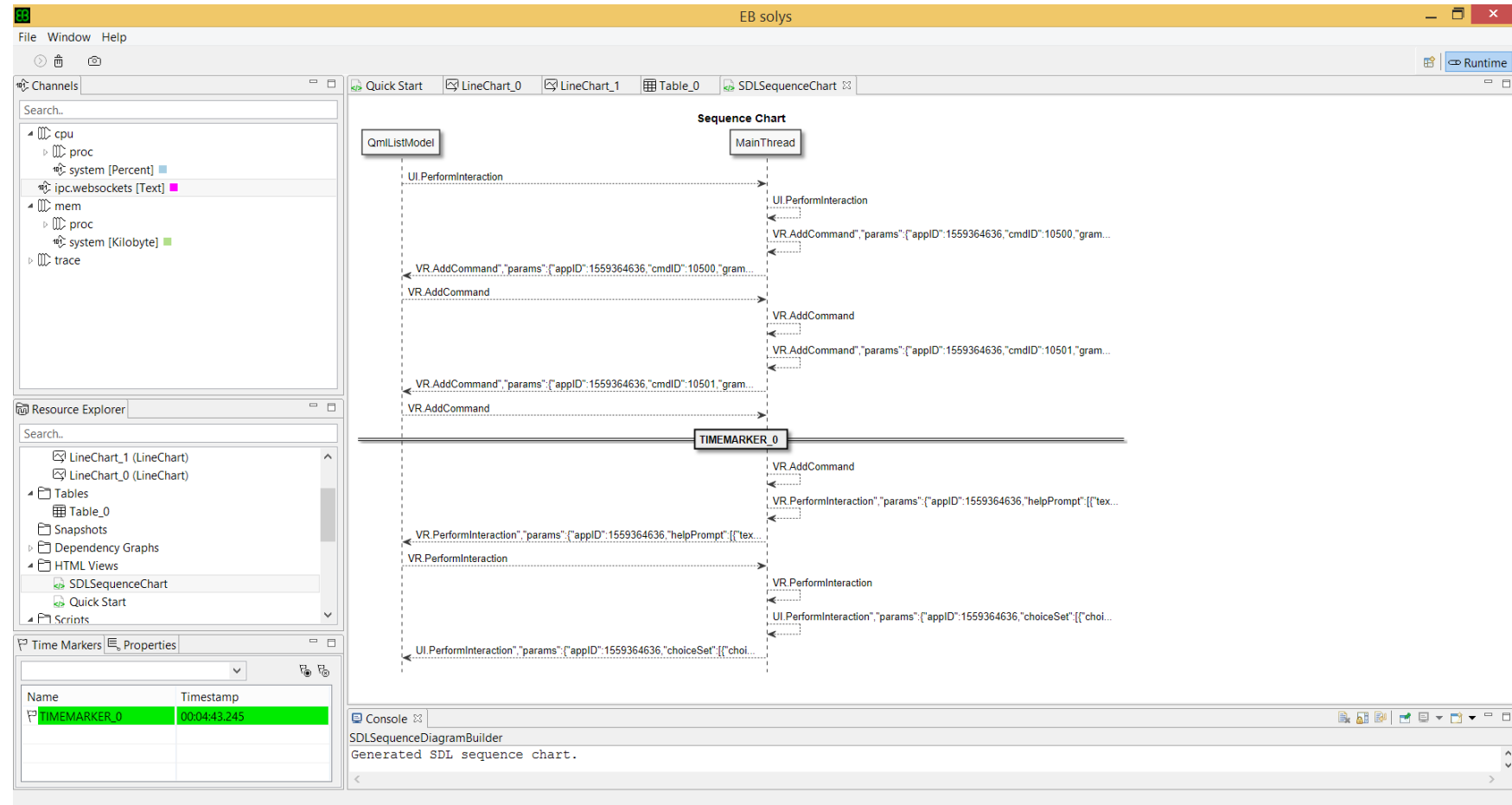
# Summary

**EB solys product homepage:**
https://www.elektrobit.com/products/soft
ware-engineering/software-integration-
and-engineering-services/eb-solys/

**Target agent source code
repository:**
https://github.com/Elektrobit/eb-solys-
target-agent

**Support forum:**
https://groups.google.com/forum/#!forum
/eb-solys-support

- EB solys combines data from different (distributed) sources

- EB is providing an EB solys package for SDL, including
  - ✓ Target Agent
  - ✓ + PlugIns for typical SDL use cases (e.g. WebSockets, DLT,…)
  - ✓ EB solys Essentials Desktop application
  - ✓ + SDL-specific scripts for analysis and visualization
  - ✓ Documentation / Tutorials

# Get in touch!

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