

Tools Architecture

NOKIA

**Mark Welsh – Development Tools &
Docs**

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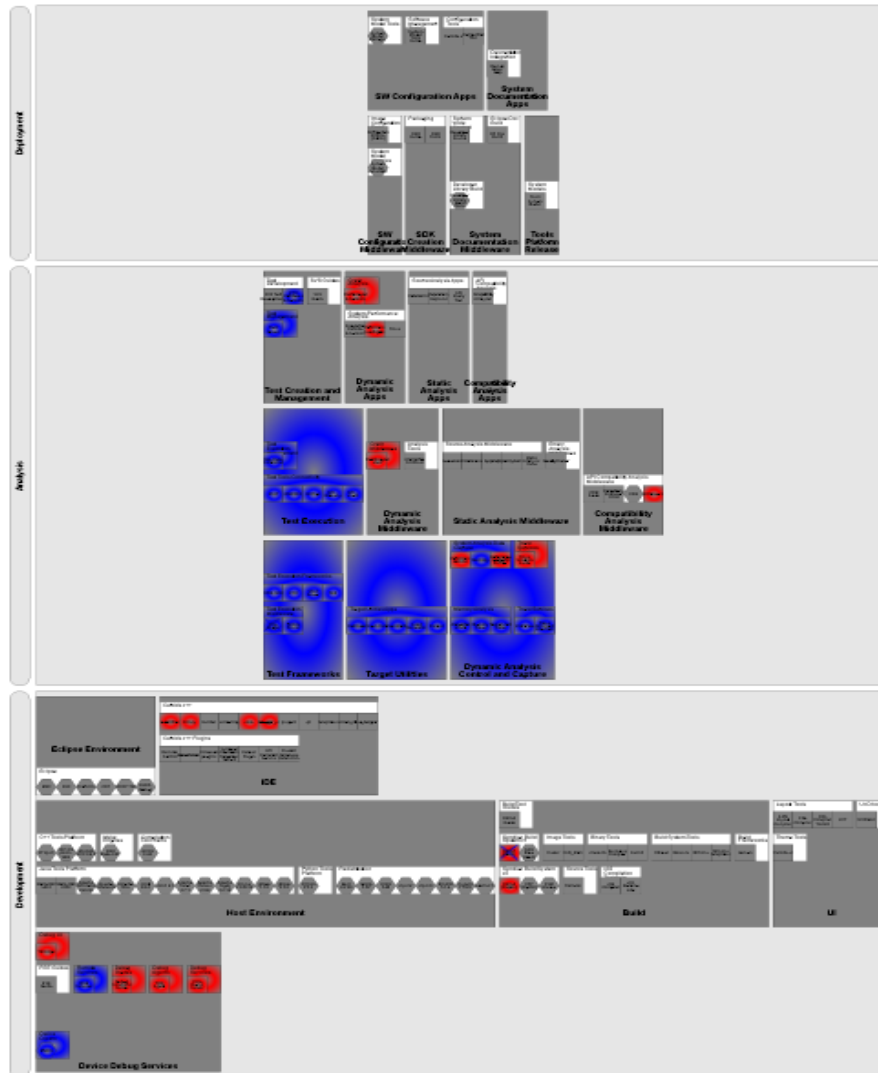
Disruptive Technology Impacts

- Symmetric Multi Processing (SMP)
- Emulator end of life
- Platform instrumentation

SMP

- SMP development –Safe and Enhanced
 - Directly influences the timing, features and types of tools required
- Tools impacted in two ways:
 - Target based tools must be fully functional in an SMP environment
 - Must provide SMP aware analysis and diagnostics

SMP Impacts - Tools Model



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SMP Tools Development

- Primary tools updates:
 - Trace framework updates to support multicore analysis
 - Multicore profiling support
 - Multicore crash support
 - Extended run and stop-mode debug support
- Extended analysis:
 - Thread scheduling behavior
 - Resource usage analysis

Emulator End of Life

- Why is the Emulator going end of life?
 - Limited support for Writable Static Data (WSD) – single instance only*
 - Cannot support SMP
 - Cannot support Writeable Data Paging
 - Different instruction set and toolchain from the target hardware
 - Different memory model from the target hardware
 - Threading behaviour is driven by windows
 - Running out of process address space
 - ...
- It is becoming increasingly unrepresentative of modern mobile phone environments (e.g. use of hardware acceleration in graphics and multimedia)
- Time of death: start of Symbian^5

Impacts everyone

Emulator Development Environment

- Very mature
- Well understood by all developers
- Typically integrated into development, build, integration and delivery processes

- Any replacement environment must provide comparable functionality and performance

- Primary tooling issues:
 - High level of Emulator tools integration
 - Edit / build / debug cycle

Simulator – Proposed Contribution

- Platform Simulator - PlatSim
 - Based on RTSM technology
 - Models based on Nokia development hardware
 - Binary contribution
- PlatSim baseport and supporting tools
 - Includes Carbide, build, debug and trace tools
 - Excludes the model development tools :-)
- All Nokia development tools will be updated (where required) to support execution in a PlatSim environment
- Proposed contribution during Q1 2010
 - Major contribution proposal in progress - early Nov

Platform Instrumentation

- Platform level analysis and diagnostics is virtually impossible on Symbian
- Component level analysis and diagnostics are performed to varying levels of success using varied tooling solutions
- Together this means that optimizing the platform is extremely difficult
- Nokia's instrumentation project aims to resolve this by:
 - Delivering a single instrumentation and analysis framework for the entire platform
 - Instrumenting key servers and services to support system and component level analysis and diagnostics

Platform Instrumentation – Proposed Contribution

- An instrumentation API supported across all areas of the platform
 - Open System Trace (OST) - part of SHAI
- Instrumented Symbian OS components
- MIPI standardized solution
- Analysis tools:
 - Component and ad-hoc analysis
 - Single and multi-core profiling
 - Memory consumption
 - Writable data paging
- Proposed contribution during Q1 2010

Back-up

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SMP Impacts - Tools Model



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