Java ME Directions

JCP F2F - Austin

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Safe Harbor Statement

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Java ME Offering

- Java ME 8
  - Released in 2014 - simultaneously with SE 8
  - JSR 360 CLDC 8 / JSR 361 MEEP
  - TCK / RI available for licensing through Oracle
- Oracle Java ME - Embedded
  - Oracle commercial implementation of Java ME 8
  - Includes proprietary APIs/enhancements
    - Highly optimized, secure, multi-tasking VM
    - On-demand, remote provisioning
    - Cellular connectivity, Device I/O integration
  - Regularly updated : 4 releases since 2014
  - Available on a variety of embedded platforms
- Java ME SDK available on OTN
Java ME 8 Adoption

Adoption Snapshot

• ME 8 products are only coming to market
  – Most products based on Oracle ME-E implementation are still in development phase
  – No request for stand-alone ME 8 JSRs licensing

• Oracle Java ME-E adoption / interest is focused on specialized IoT market segments
  – Wireless modules (inc automotive), Smart meters / energy, development boards, integrators
  – (To a lesser extent) edge gateways, smart sensors.
  – Critical to adoption : large volume potential & strong requirements for upgradability

Why has been slowing down adoption?

• Potential roadblocks
  – Embedded development / certification / update cycles are very long – especially in low-end
  – No strong case yet for interoperability yet at the low-end of the embedded space
  – Commercial Model vs free/homegrown options
  – CLDC 1.1-based products continue to work
  – Volumes for updatable / programmable devices remain small outside of modules / meters
  – More and more silicon can support SE-E
Perspectives for Java ME 9

Current Course

• Java ME refresh is not part of the Java 9 Release in 2017

• Synchronized releases are desirable, not critical
  – Limited ME/SE developer community overlap
  – Embedded adoption cycles are longer

• No obvious functionality gap that cannot be addressed with existing releases
  – Most Java ME 8 products are still in development and have not yet reached commercial stages

Building a Case for ME 9

• The JCP EC ME Working Group has been discussing the need for a Java ME 9 release
  – Market opportunity & competition for Java in low-end segments
  – Technical requirements for ME/SE consistency and specific to the embedded market
  – Results will be presented at the JCP F2F

• Java ME customers and prospects want clarity on platform evolution
  – Public messaging on Java ME future desired at JavaOne 2017
ME 9 – Potential Technical Scope

• Drive toward greater alignment with Java SE
  – Increased language level compatibility, API semantic parity, etc
  – Decrease the language feature gap.
  – Candidates:
    • Collections
    • Reflection
    • Runtime Annotations
    • Concurrency utilities
    • Collections and Math API
    • JNI Access

• Add support for IoT standards and protocols
  – REST client, MQTT/CoAP support, expanded DIO

• Update old JSRs relevant to Embedded
  – SATSA in particular
  – JSR update could be incremental to ME8 and not necessitate a platform release

• Designed for high volume, constrained devices
  – Compact footprint: as low as 128 KB RAM, 1 MB Flash
  – Low Startup Time requirements
Going Forward Proposal – Platform (Spec and TCK)

Oracle’s effort in the embedded space is focused on Java SE

• Java SE 9 will offer greater coverage of the embedded device landscape
  – Finer-grained control over an application’s runtime footprint through JSR 376 (Jigsaw)
  – Cheaper/more powerful silicon implies a greater fraction of devices can run SE9

If there is critical mass of interest, Oracle would support an ME9 proposal in JCP

• Java ME 9 = update to CLDC & MEEP
• Oracle would support 3rd party spec lead
  – A suitable spec lead would have to be designated in agreement with the JCP EC
  – Oracle would be part of the EG
• Oracle may lead/participate to optional JSR updates in some cases
  – If relevant to SE context, or critical to cross-platform / version adoption
• Licensing model will be agreed with potential spec lead

Alternatively: aim for Java 10 timeframe as a synchronized release