Mobile Phone Profile WG

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WG Chair
Profile Work Groups

• Intended to address the mismatch between CELF members and CELF’s current work program and build participation:
  – CELF’s work program has, so far, been driven from operating-system technology perspective.
  – Many CELF members are primarily product builders and do not develop OS functionality, obtaining Linux from a distribution.
  – Product-side CELF members have the most direct perception of technology needs for supporting CE product development.

• Domain-centric working groups, building profiles of technology needs for their specific domains, could be effective in defining CELF’s technology-development priorities, leveraging member knowledge of their domains.
The Mobile Phone Profile WG

• The Mobile Phone domain is a prime domain for CELF:
  – Most phone vendors are working on Linux-based products or prototypes.
  – Domain is converging with desktop and media devices, especially at the high end.
  – Phone requirements stress Linux in all the areas CELF has identified as central to
    CE needs and others (like networking bandwidth).
  – The major phone vendors are participating in CELF.
  – Using mobile-phone requirements to identify technology needs common to many
    CE domains will ensure focus on activities of high value to many members.
• Many elements of common mobile-phone functionality are not yet available as
  commercially-qualified open-source components, including such central
  functionality as browsers.
• Many successful solutions to needs in the mobile-phone domain will also be
  applicable to other CE domains. The resulting common capabilities will avoid
  fragmentation and allow vendors to concentrate on differentiating features,
  rather than on base functionality.
• With a common framework defined, 3d-party and open-source projects will be
  able to develop new features knowing that they will plug into multiple
  vendors’ profile-compliant products.
A mobile terminal with high capability (including smart phones) with W-CDMA/UMTS and GSM/GPRS Dual feature

Main features

LCD: QVGA(240x320) 64K colors
Camera: 1M-2M pixels
External memory: e.g. mini-SD
External I/F: Bluetooth, USB, IrDA, etc
Browser: XHTML/WML
Java: MIDP2.0 CLDC
Messaging: SMS MMS/SMIL E-Mail
Others: GPS
OTA Provisioning
DRM
DM
Charter

• The Mobile Phone Profile Working Group (MPP WG) will develop a reference profile for Linux-based mobile-phones in various functionality tiers.
  – Reference architectures (components and basic structure) for platform and enabling services for specific tiers.
  – The reference architectures provide a framework for identification of performance and functionality needs:
    • Mobile-phone-specific requirements for the base kernel.
    • Mobile-phone-specific requirements for enabling middleware and services supporting horizontal (functionality) domains important in mobile phones (multimedia, Database, etc.).
  – A roadmap for the evolution of the profile, projecting need for additional component technologies.
Scope

- The scope of the MPP WG includes Linux interfaces, middleware, APIs, and component implementations supporting phone-specific functionality tiers.
  - Does not include user-level functionality or air-protocol support, except as source of requirements and interfaces
- The WG may recommend to the AG that CELF support or initiate open-source development of profile elements.
Reference Model

Applications (Phone, Browser, JAVA, PIM...)
MPPWG Priorities

- Standardization of architecture and APIs for mobile phone software providing internet and multimedia services
  - Develop Linux OS for Consumer Electronics that meets requirements for mobile phones
  - Accelerate migration of PC domain internet services to MP domain by use of Open Source Software
  - Establish platform to support common multimedia services with mobile phones
WG Organization

• Chair: Scott Preece (Motorola)
• 57 Participants on mailing list from 25 member companies
  – 15 phone manufacturers
  – 5 chip vendors
  – 5 OS and middleware vendors
  – 2 other interested parties
• Core Group: Motorola, NEC, Panasonic, Samsung
Working Plan

- Periodic teleconferences and face-to-face meetings to negotiate details
- E-mail interaction to provide raw requirements and review work products
- Focused small groups draft specific deliverables
- To-date:
  - Core Group provided initial materials
  - One face-to-face (November)
  - Very limited success at eliciting e-mail interaction
Deliverables / Work Items

- Reference Tiers and Profiles *(Draft Available)*
- Reference Architectures matched to tiers *(First sketch)*
- MPP Requirements for Core Linux Components *(Not started)*
- Middleware Scope and Requirements *(Not started)*
- Open-Source Projects (Component Inventory)
  - Project/Component list *(Not started)*
  - Reference implementations *(Not started)*
- Related organizations *(Some identified)*
- API Scope and Requirements *(Proposal in preparation)*
- Roadmap for domain evolution *(Not started)*
- Schedule *(Out of date)*
Reference Tiers Profiles

• Set of “functionality points” – phone categories we will generate profiles for
• A Tier Profile Defines:
  – Typical functionality
  – Variability
  – Hardware performance and characteristics
  – Memory (RAM, ROM, Removable)
Reference Tiers Proposal

• WG has identified and characterized four tiers:
  – Smart Phone
  – Media Phone
  – Feature Phone
  – Basic Phone

• Described in terms of “typical” capabilities (i.e., qualitative tiering)
Reference Architectures

- Reference Architecture is a commonly understood structuring of systems
  - Common components
  - Common subsystems
  - Relationships, dependencies, interactions
  - Variabilities
API Scope and Requirements

- Core group proposed that an API for third-party application builders should be a high priority.
- Ideally this should be a “real” API, known to provide functionality needed to support the full scope of the domain tier.
- NEC and Panasonic have jointly provided a proposed API and implementation.
- Proposal is meant as a starting point – assume the WG would evolve it for consistency, organization, and needs of additional technologies.
Relation with MPPWG Component Inventory List

Application (Phone, browser, Java, PIM etc.)

Carrier specific module (FOMA, Vodafone, i-Mode for overseas)

User-facing feature presentations

12 Telephony

1 Application Framework
2 Feature Services
4 Browser
5 Java
13 User Interaction
14 Test Support
16 Debugging Support

APIs

Carrier common module
Generic middleware
Functionally specialized OSS
Vendor specific middleware

Linux Kernel

Device Driver (Communication)

Device Driver (UI, Multimedia)

API and profile specified part (Open source would be desirable)
Carrier specific module
Vendor specific module

Extensions and Implementations

17 Operating System

15 Device Drivers

January 25th, 2005
Schedule

• Initial Proposal:
  – Phase 1 (by December 2004)
    • Technical scope defined
    • Architecture drafts approved by WG members
    • First round of requirements available
  – Phase 2 (by March 2005)
    • Document deliverables sent to AG for review
  – Phase 3 (by June 2005)
    • Patches implementing available reference architecture components provided to AG