Agenda

- Customers’ Perception
- What are services?
- Firmware Management
- Rethinking the Life-Cycle
- Where are we?
- prplFoundation
- Moving Forward
- Getting Involved
- Q&A
Customers’ Perception: Broadband Service

- Speed
- Price
- Customer Expectations
- Service Provider
- Revenue Challenge
- Connectivity Gateway
- Application Gateway
Customers’ Perception: What is a router?

Internet is a Post Service for Data

Router is the Distribution Centre
Customers’ Perception: Possible to change?

Smart-Phones weren’t always Smart!
Customers’ Perception: Can we do the same for fixed?

Non-Monetized Services

- Guest Network
- File Sharing
- Printer Sharing
- Mobile Backup
- Boost Device
Customers’ Perception: What are services?

- Smart Wi-Fi
- Smart-Home
- Network Scanners
- Parental Controls
- Dynamic QoS
- VPNs
Customers’ Perception: Smart-Router

Should we rename our devices to Smart-Routers?
Firmware Management: Challenges

Each customer is different!

Avoid breaking QoS
Firmware Management: Re-thinking the Life-Cycle

Can we breakdown the Firmware?

- Single Block
- Independent Deployable Units
  - ServiceA
  - ServiceB
  - ServiceC
  - Middleware
LCM: Where are we?

**Market Solutions**

- **Proprietary**
- **Open-Source**

**Common Problems**

**Similar Functionality**

- **No** common set-of-APIs.
- **Different** dependencies and integration processes.
- **No** common packaging formats.
- **Different** signing mechanisms.
- **Non** standardized ACL constraints.
LCM: prplFoundation

- Open source-community, which groups carriers, ODMs and SoC vendors.

- Collaborative efforts to harmonize the industry.

- Promote different implementations, whilst ensuring common touch points.
LCM: Moving Forward
LCM: Requirements

Why do we need to **harmonize**?
- Cope with multiple suppliers.
- Ensure common baseline.

Where do we need to **draw the line**?
- Minimum feature set.
- Security constraints.
- Packaging format.
LCM: Requirements (Feature Set)

- Services
  - Install
  - Update
  - Remove

- Configuration
  - Backup
  - Restore

- Troubleshoot
LCM: Requirements (Constraints)

- CPU
- Memory
- Storage
- Network
- APIs

Constraints:
- System Reboots
- High Response Times
- Network Errors
- Unstable Links
LCM: Requirements (Packaging)

Service

Dependencies

Configuration

Constraints

Vendor A

Vendor B

Vendor C
LCM: Specification

• Integrating 3rd party software is complex.

• Project effort estimates tend to be underestimated.

• Same feature can be integrated in different ways.
Lack of architectural guidelines and common APIs, lead to forking and uncontrolled integrations.
LCM: Reference Implementation

• Why do we need it?
• Shouldn’t carriers partner with 3rd party companies?
• How can the industry benefit overall?

Effort Management

Proprietary
  Non-Differentiating features

Open-Source
  Common Baseline
LCM: Test Framework & Certification

Common APIs

Reversible Test Framework
Resolving bugs early and often reduces associated costs

- Conception
- Design
- Development
- Testing
- Release

Cost to fix a bug: 10,000 X, 1,000 X, 100 X, 10 X, 1 X
LCM: Test Framework & Certification

Clear Expectations

Better Time-to-Market

Wider Adoption
Final Thoughts

Change customers’ perception

Breakdown LCM

Common Baseline

Enabler

!=

Differentiator

Invite External Innovation
Call to Action

Join us at prpl!

Q&A