Tizen IVI Architecture

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This presentation introduces Tizen's IVI profile architecture. It gives an update on the architecture status and highlights some of the future plans and visions.

Tizen IVI architecture definition is driven by requirements coming directly from automotive industry and via GENIVI®. Therefore, the architecture does not fully share the same core components, e.g., with mobile phone stack. This presentation talks where the biggest differences are.

Furthermore, it explains how Tizen IVI is built bottom up from independent subsystems.
Tizen IVI (Preview) – Status and Plans
Tizen IVI Preview

Key Non-functional Drivers

• Boot to home screen in < 7 seconds
• Provide a size optimized rootfs (< 500Mb) installation
• Provide an easy way to customize/configure and build a complete stack bottom up
Tizen IVI Preview
Key Technology Drivers

- Demonstrate Wayland display protocol and X11-less stack
  - Wayland project released a snapshot branch (“v0.85”) in February 2012
  - Includes v0.85 Wayland protocol and Weston reference compositor implementations
- Demonstrate UI toolkits using Wayland with sample apps
  - Qt 4.8, EFL, and GTK+ 3/Clutter in Tizen IVI today
- Provide window management system as an installation option
  - Wayland <-> X11
  - X11 for backwards compatibility during a transition period
- Demonstrate fastboot using systemd
- Ship a GENIVI® compliant stack w/ all GENIVI Compliance 2.0 components enabled
GENIVI® Compliance 2.0 Details

• “GENIVI® is a non-profit industry alliance committed to driving the broad adoption of an In-Vehicle Infotainment (IVI) open-source development platform.”

• “The GENIVI compliance program provides a set of specifications for GENIVI member companies to measure their products and services. Those that meet the specifications may be registered as GENIVI compliant…”

• Specific Component = SC, Abstract Component = AC, Placeholder Component = PC

• P1 = Mandatory P2 = Optional, must be fully disclosed if implemented For Placeholder Component requirements: P3 = Optional, does not have to be disclosed
GENIVI® Compliance 2.0 Details, cont’

• Tizen IVI just applied for GENIVI® compliance and is providing all “P1” components in tizen.org repositories

• Examples of such components:
  – Systemd (SC)
  – Bluetooth stack (PC) -> Bluez
  – OpenGL-ES (AC) -> emgd-bin

• And many more: linux kernel, Gstreamer, alsa*, connman...
Architecture Focus Items for Tizen IVI 1.0

• Webruntime + automotive device API(s)
• Wayland + kernel updates
• Rootfs size optimization, Busybox
• Resource policy & audio routing for automotive needs
  – Independent passenger zones (audio and displays)
• Automotive network management (daemon)
  – A daemon talking to CAN, OBD... buses.
  – D-Bus API definition ongoing, based on MeeGo IVI initiative
• Active collaboration with GENIVI®
  – v3.0 compliance in October
  – Proof of concept demonstrations, e.g., persistency
Tizen IVI Architecture – Delta
Tizen IVI – Building the Stack Bottom Up
Customization, next steps

- Define more installable patterns
- Map RPM package groups to the architecture diagram
  - Gives platform developers a way to see which set of packages implement each subsystem
Tizen IVI – Project Setup
Tizen IVI Project

IVI on tizen.org

Downloads
http://download.tizen.org/previews/ivi/latest

Wiki Page
http://wiki.tizen.org/wiki/IVI

Email list
IVI@lists.tizen.org
http://lists.tizen.org/listinfo/ivi

Issue Tracking
http://bugs.tizen.org (Tizen IVI Project)

Register username to edit wiki or issues
https://www.tizen.org/user/register
Tizen IVI Project: Reference HW

- Using devices running Intel Atom E6XX SOC

1. Nexcom VTC 1000-L
   - A commercially supported, the official Tizen IVI reference HW
   - Go to nexcom.com to buy yours

2. Intel Crossville OKI devkit

3. Pinettrail netbooks