Rygel: OpenSource DLNA
Ready for consumer products?

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Disclaimer
DLNA

• Vendor-independent (more or less)
• Set of use-cases and scenarios
• Set of media formats
• Guidelines and interoperability rules
• On top of UPnP-AV
UPnP(-AV)

- Technology
  - Discovery
  - RPC
  - Eventing
- Devices and Services
  - Servers
  - Renderer
  - Controller
UPnP-AV/DLNA Architecture

- **DLNA Player**
- **UPnP Renderer**
- **AV Server**
- **AV Controller**

Control

Data

Control

Data
UPnP-AV/DLNA Architecture

- DLNA Player
- AV Controller
- AV Server
- UPnP Renderer
- Rygel
- dLeyna

Control

Data

Rygel: OpenSource DLNA
Rygel

- Based on GUPnP
- Plug-in based implementation of
  - AV Media Server
  - AV Media Renderer
- LGPL2 licensed
- Deployed in products
Rygel aims to:

• Be small
• Use no to minimal configuration
• Work out-of-the-box with a wide range of devices
• But: As a software **NOT** certified
Rygel + DLNA

- Nokia's N9 Smartphone – certified
- Upload feature
- Powered by Rygel + GUPnP
- A base for a fast path to certification
  - **BUT** always depends on the base system and data source
The Past

• Based on GStreamer
• Media server executable
The Past

• Based on GStreamer
• Media server plug-ins
The Past

• Based on GStreamer
• Media server plug-ins
• Media renderer plug-ins
The Past

• Based on GStreamer
• Media server plug-ins
  • Via code
  • Via DBus
• Media renderer plug-ins
  • Via code
  • Via DBus
The Work-in-Progress

- Binary
  - Flexible media back-ends
    - Default GStreamer
  - Extension-points via plug-ins and DBus
The Work-in-Progress

• SDK - Set of libraries
  - librygel-server
  - librygel-renderer
  - librygel-renderer-gst
The Work-in-Progress

- Functionality
  - Change tracking and synchronisation
  - UDA 1.1
  - Playlist support
- Enhanced documentation
The SDK: Plugins

- Rygel process necessary
- Plugins can live out-of-tree
The SDK: DBus

- Rygel process necessary
- Decoupling UPnP process from content
- License separation
- Restricted in flexibility
- Issues in DLNA compatibility
  - Particularly for Renderer
The SDK: librygel-server

- In-process
- UPnP-AV server
- Implement folder structure
- EPG
The SDK: librygel-renderer

- In-process
- UPnP-AV renderer
- Simple interface
The SDK: librygel-renderer-gst

• In-process
• Based on GStreamer playbin2
The other side

• Rygel implements server
• Consumer:
  • DLNA Player
  • UPnP Controller
dLeyna: The other side

- Rygel implements server
- Consumer:
  - DLNA Player
  - UPnP Controller
- Use dLeyna
dLeyna: The other side

- http://01.org/dleyna
- Access server and renderer via DBus
- Implementation of missing features
  - Server-side Search
Questions?