

ETRI Platform (FiRST@ETRI) and ProtoGENI Integration

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ETRI

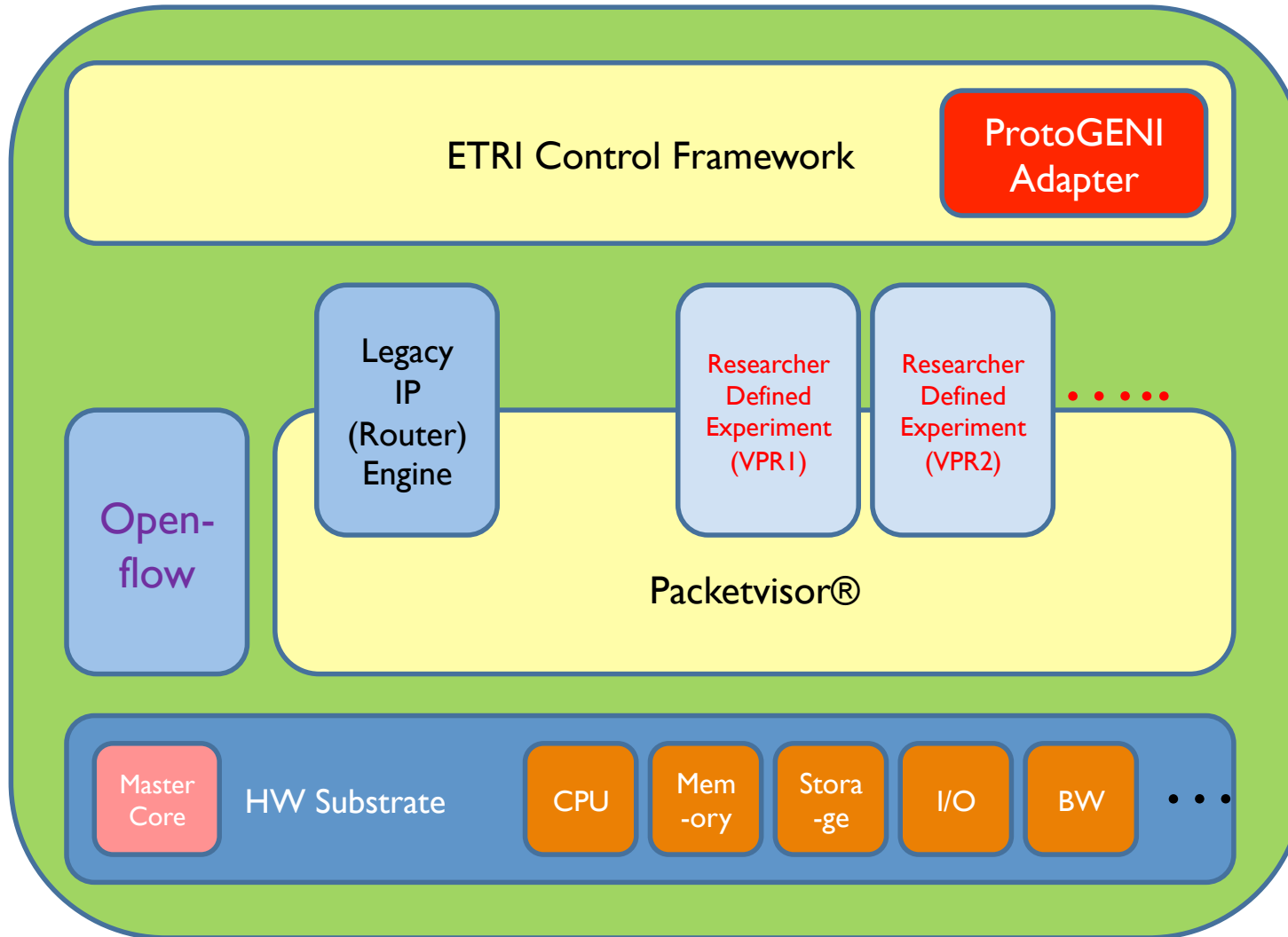
ProtoGENI Cluster Team Meeting @GEC9, Washington DC
Nov. 2 2010

ETRI Platform Specification

- Multiple Substrate Support
 - NP-based hardware Platform
 - Virtualized programmable substrate that operate at high speed (ATCA hardware)
 - NetFPGA/PC, Wireless AP, etc.
- Virtualized programmable routers
 - Researcher-defined “Silver-based Virtual Routers”
- Common Platform APIs
 - Programming APIs for Researchers
 - Open substrate interfaces
- Capabilities and functions
 - Dynamic End-to-end Slice Operations
 - Control Framework APIs (protoGENI-compatible)
 - Openflow enabled



Platform Architecture

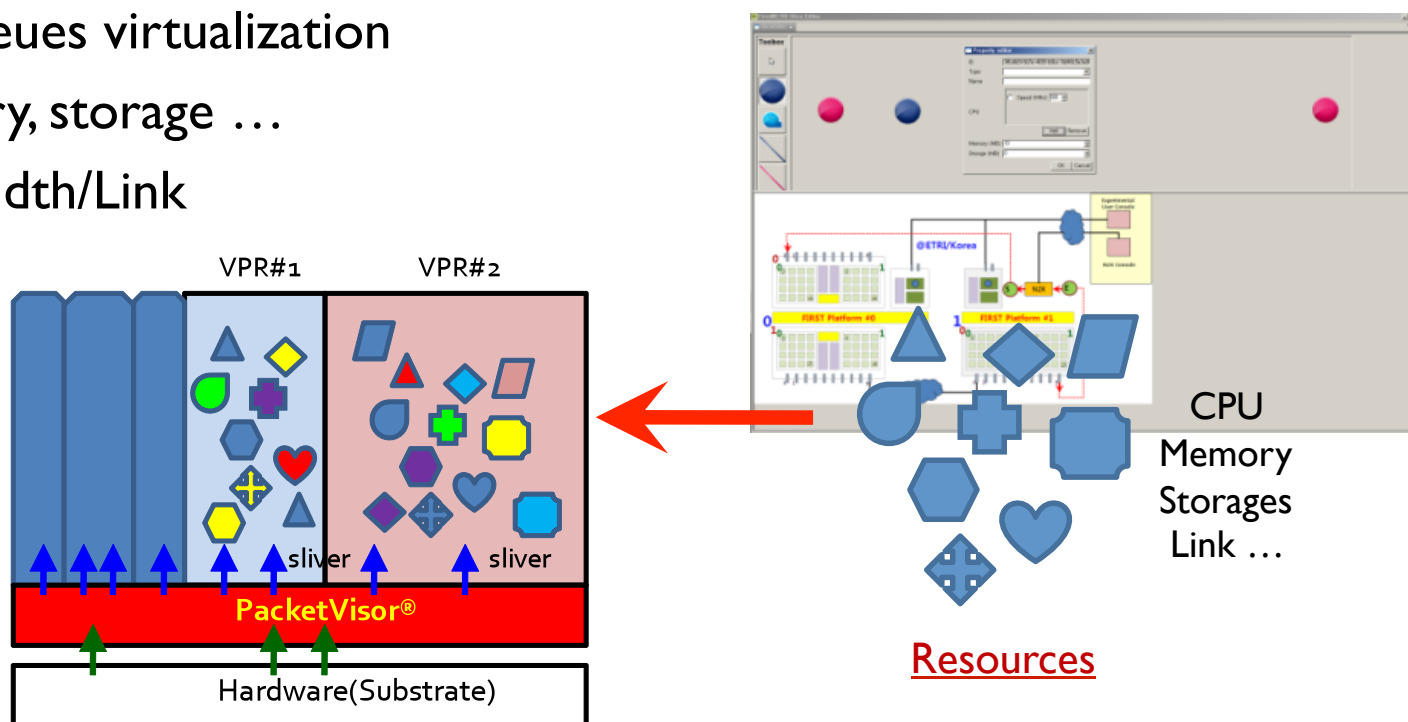


On-going Works

- Packetvisor
- Control Framework
 - ProtoGENI CM Integration
 - Open substrate Interfaces
 - Programming APIs for Researchers
- New Client Apps for Smart Phone Users

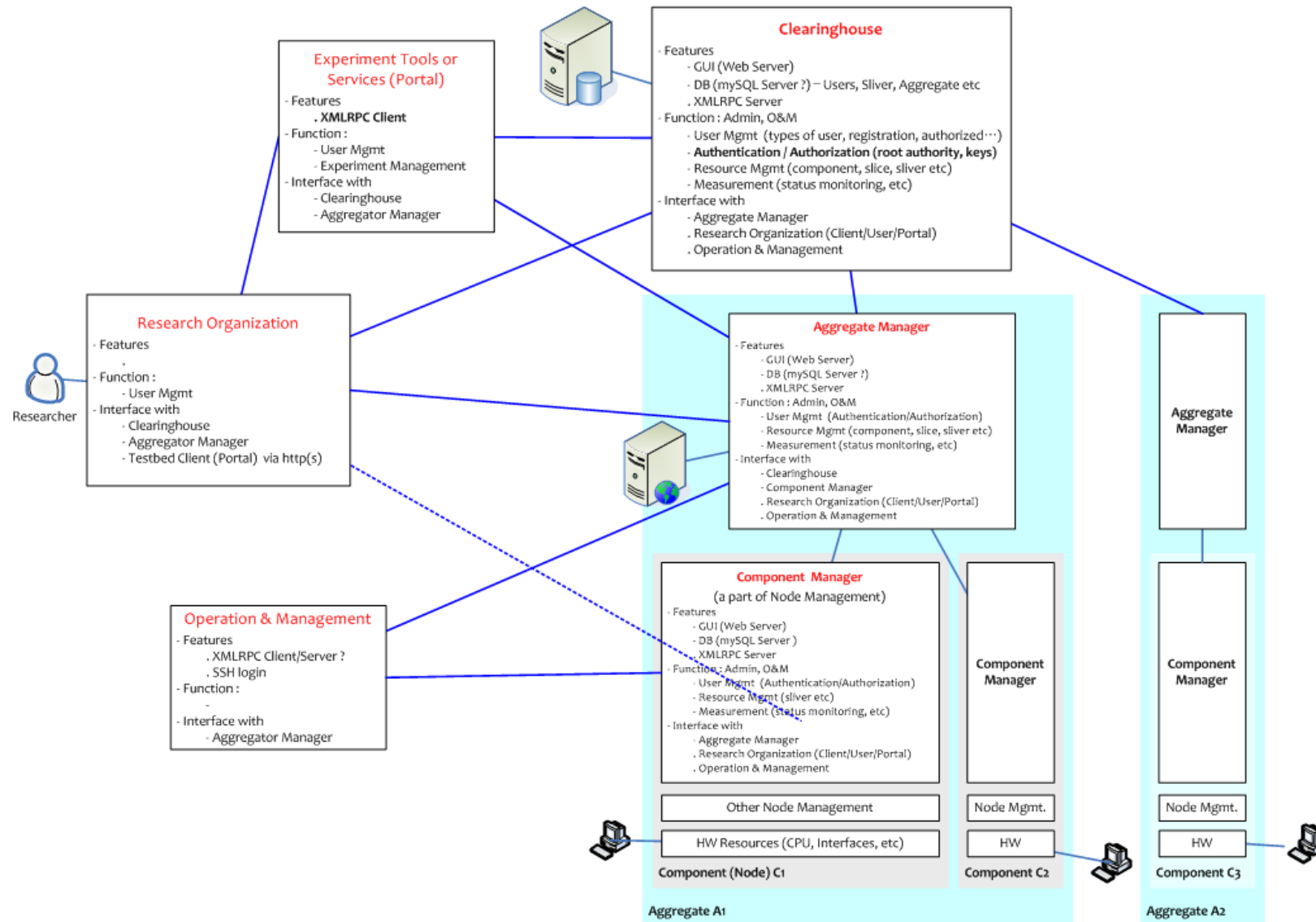
Packetvisor

- Dynamic resource allocation to sliver/link
 - Load multiple images (experiments) on 1 CPU Core
 - Multiple slivers scheduling
 - **Dynamic CPU resource allocation on slivers**
 - I/O queues virtualization
 - Memory, storage ...
 - Bandwidth/Link

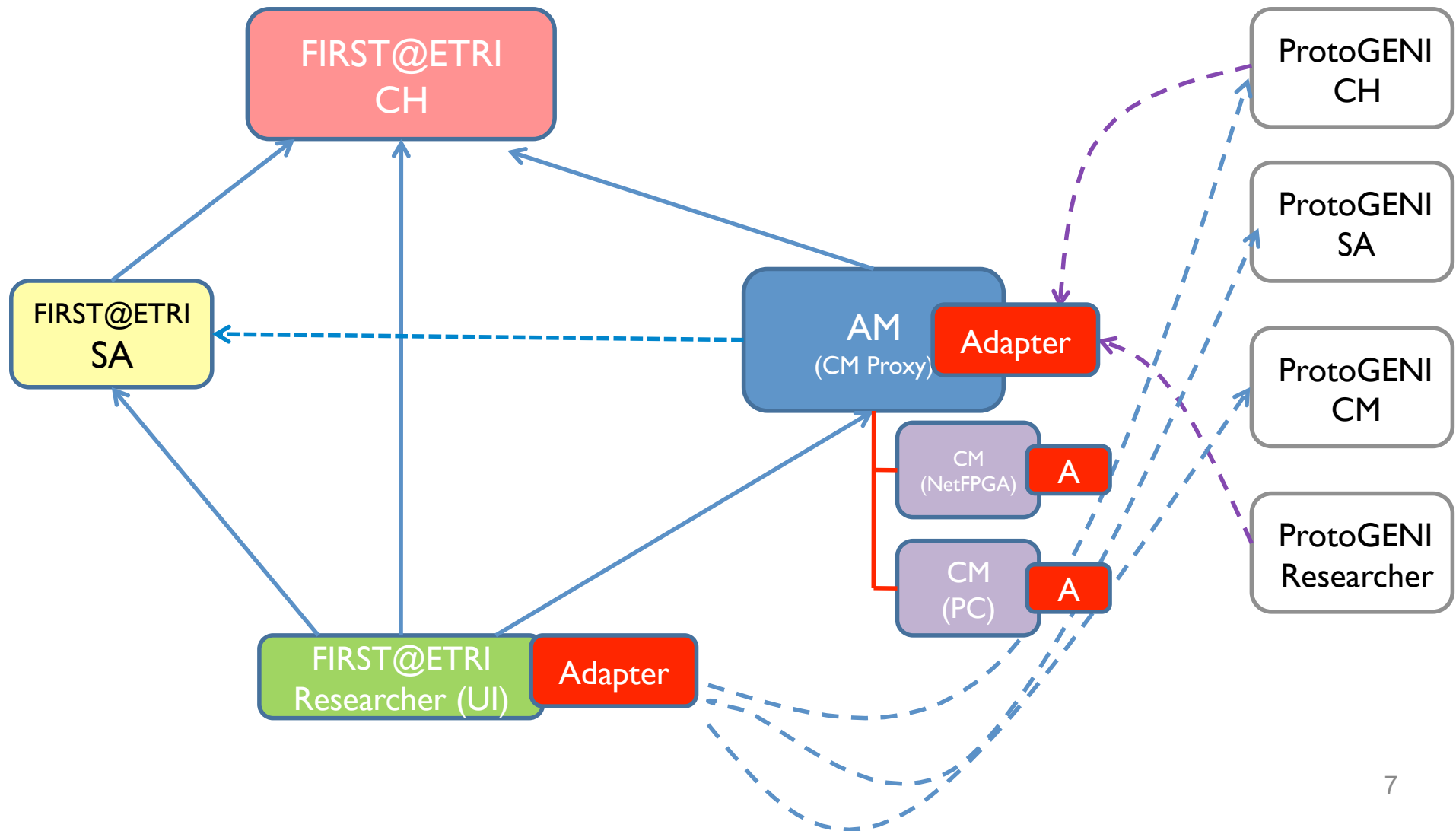


VPR - Virtualized Programmable Router

ETRI Control Framework

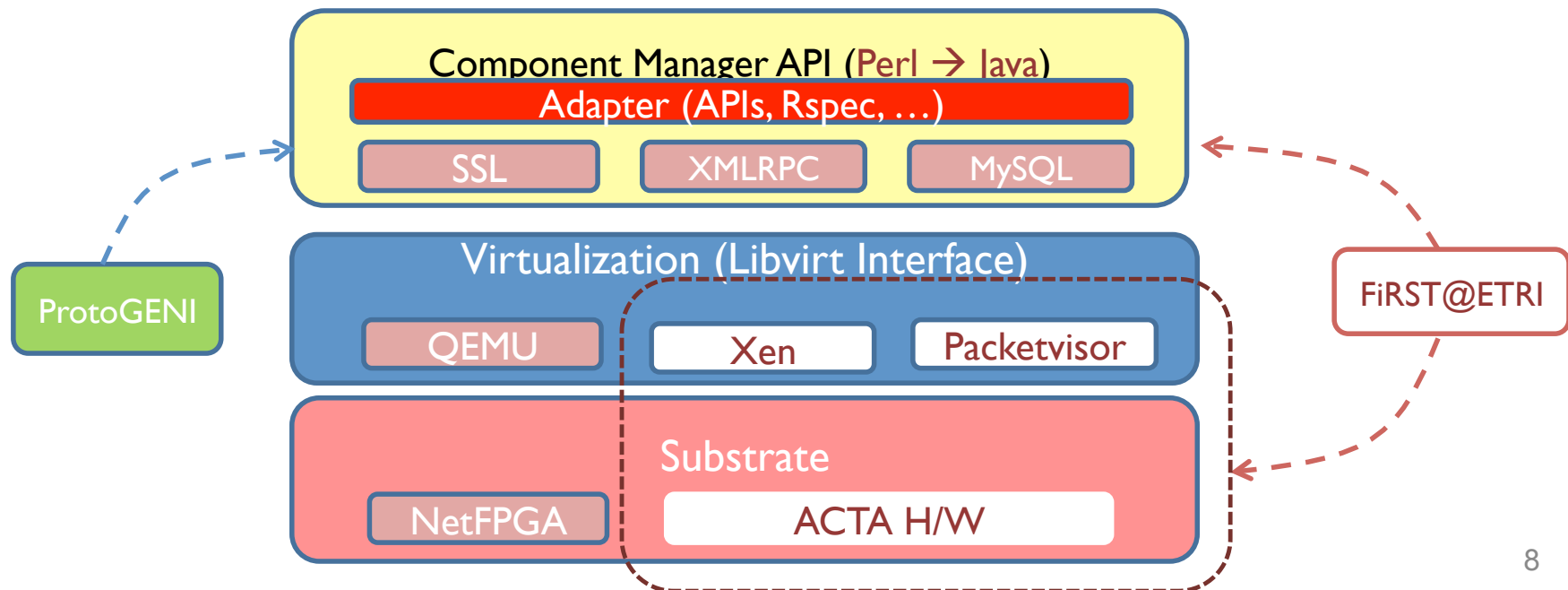


Adding ProtoGENI Adapter



ProtoGENI Reference CM Extension

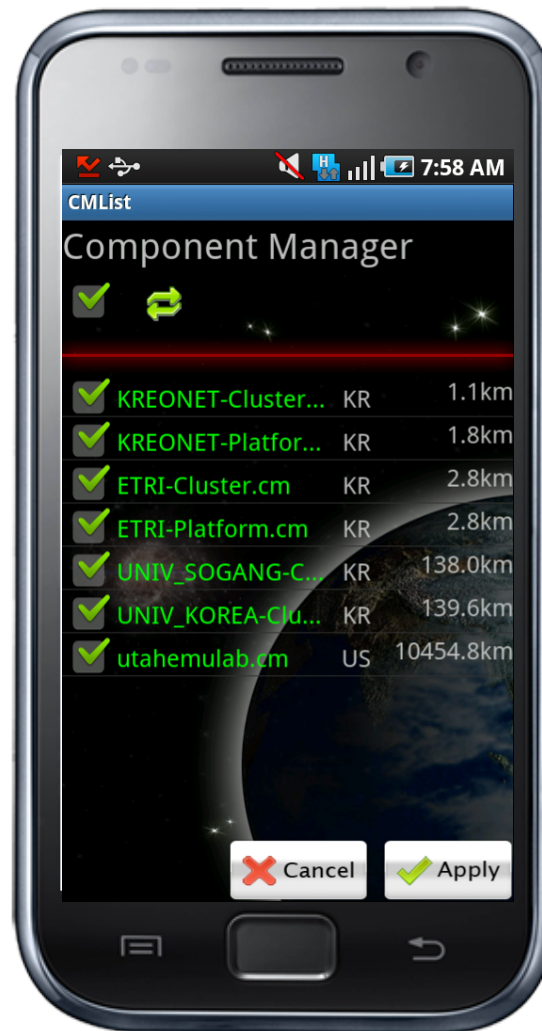
- ProtoGENI Adapter
 - Build up the Adaptor from the CM codes
 - Java Implementation
 - Xen and Packetvisor virtualization support for backend



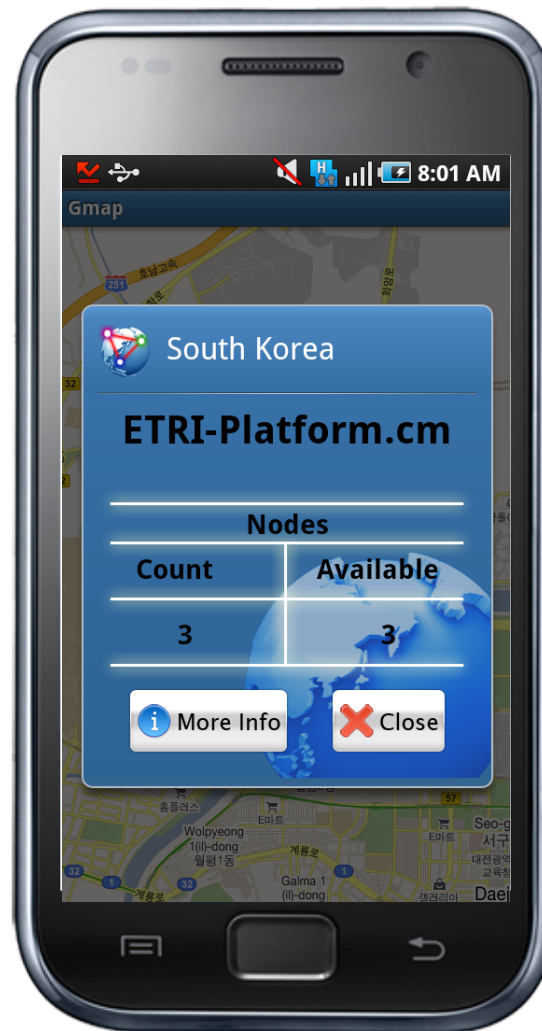
New Client App for Smart Phone



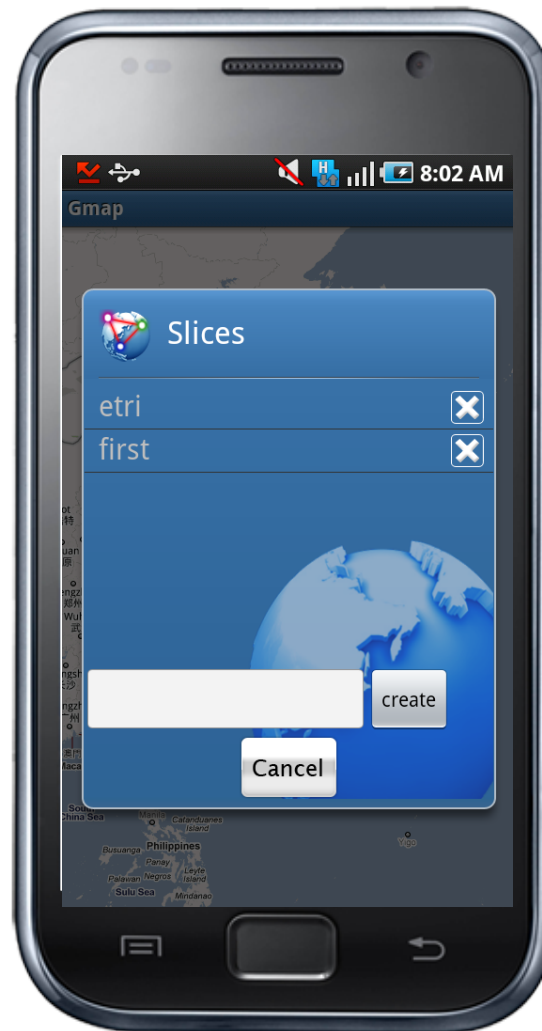
New Client App for Smart Phone



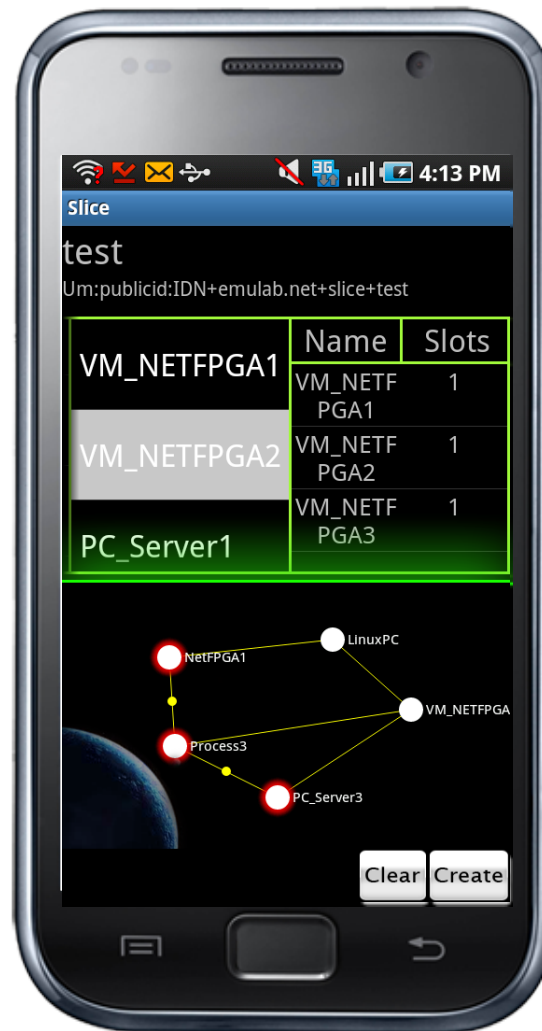
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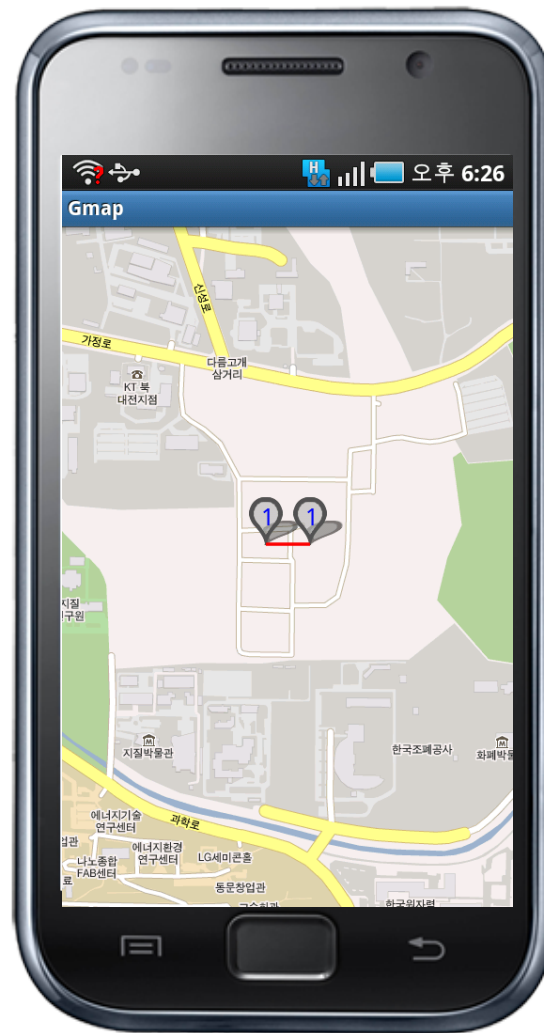
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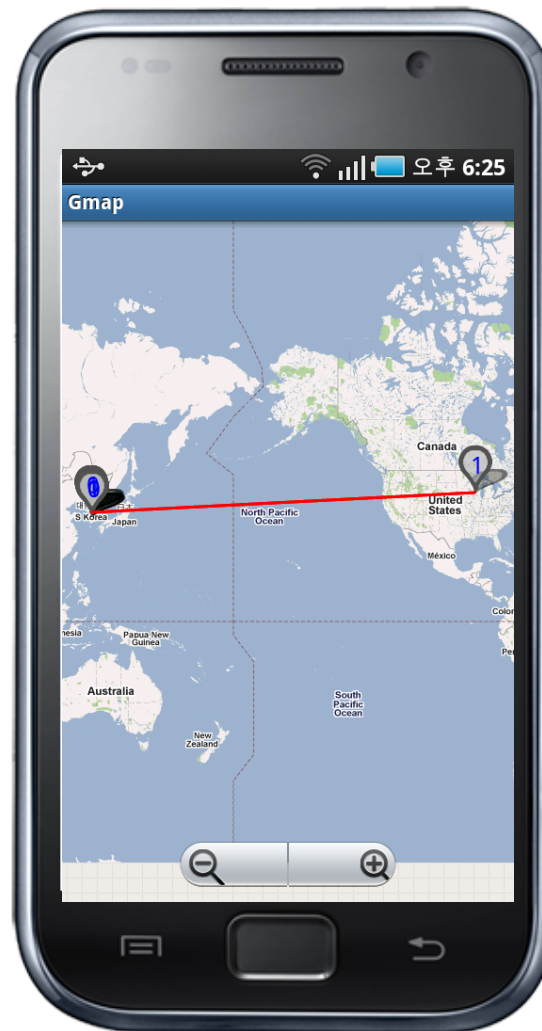
New Client App for Smart Phone



New Client App for Smart Phone



New Client App for Smart Phone



Open Issues and Next Steps

- Open Issues
 - Cross-CF Federation
- Next Steps
 - ETRI Reference CM (v1.0) Release (GEC10)
 - Written in Java
 - libvirt + Xen extension
 - Android GUI Apps (v1.0) Release (GEC10)