

ETRI Virtualized Programmable Platform and K-GENI Network Update

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ETRI

Dongkyun KIM

KISTI

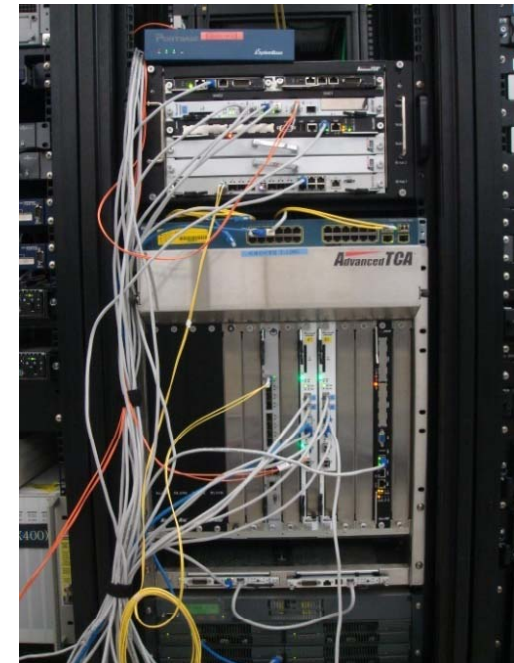
GEC7 - ProtoGENI Cluster Meeting

Mar. 15 2010

ETRI Platform

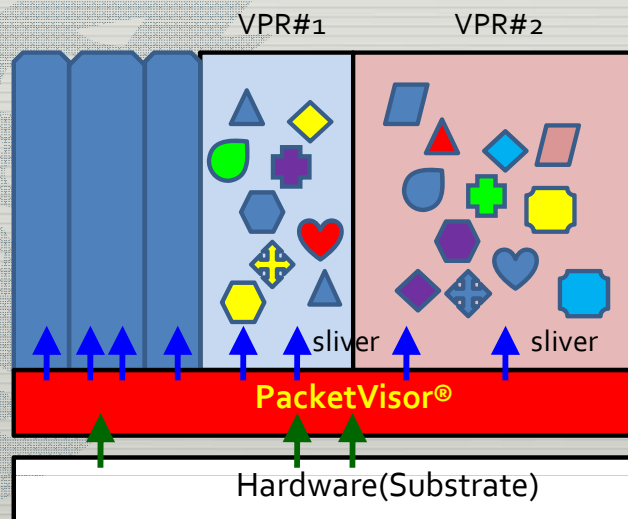
- NP-based hardware platform
 - Virtualized programmable substrate that operate at high speed
 - Programming APIs for researchers (e.g., hardware-based packet processing APIs)
 - Common platform interfaces (e.g., Component Manager, Aggregate Manager, Slice Authority, etc.)

- Dynamic end-to-end slice operations
 - ProtoGENI compatible control framework
 - Allocate Rspec to sliver and link (e.g., CPU, memory, bandwidth, etc.)
 - Change Rspec during operation

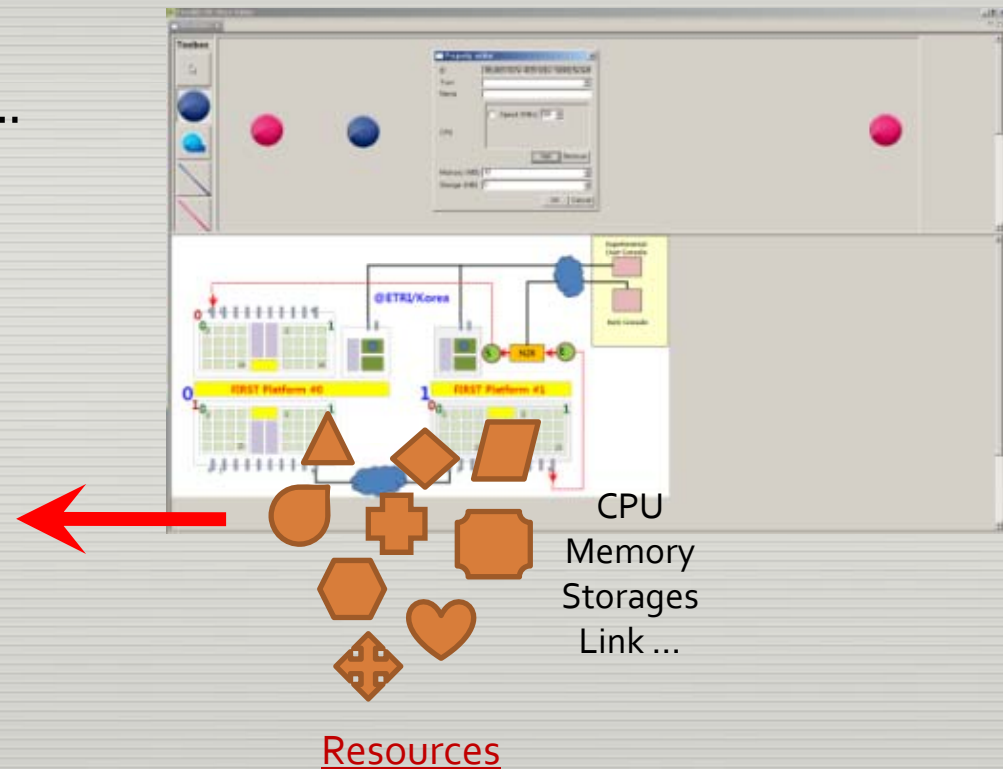


Researcher-defined “Virtualized Programmable Routers (VPR)”

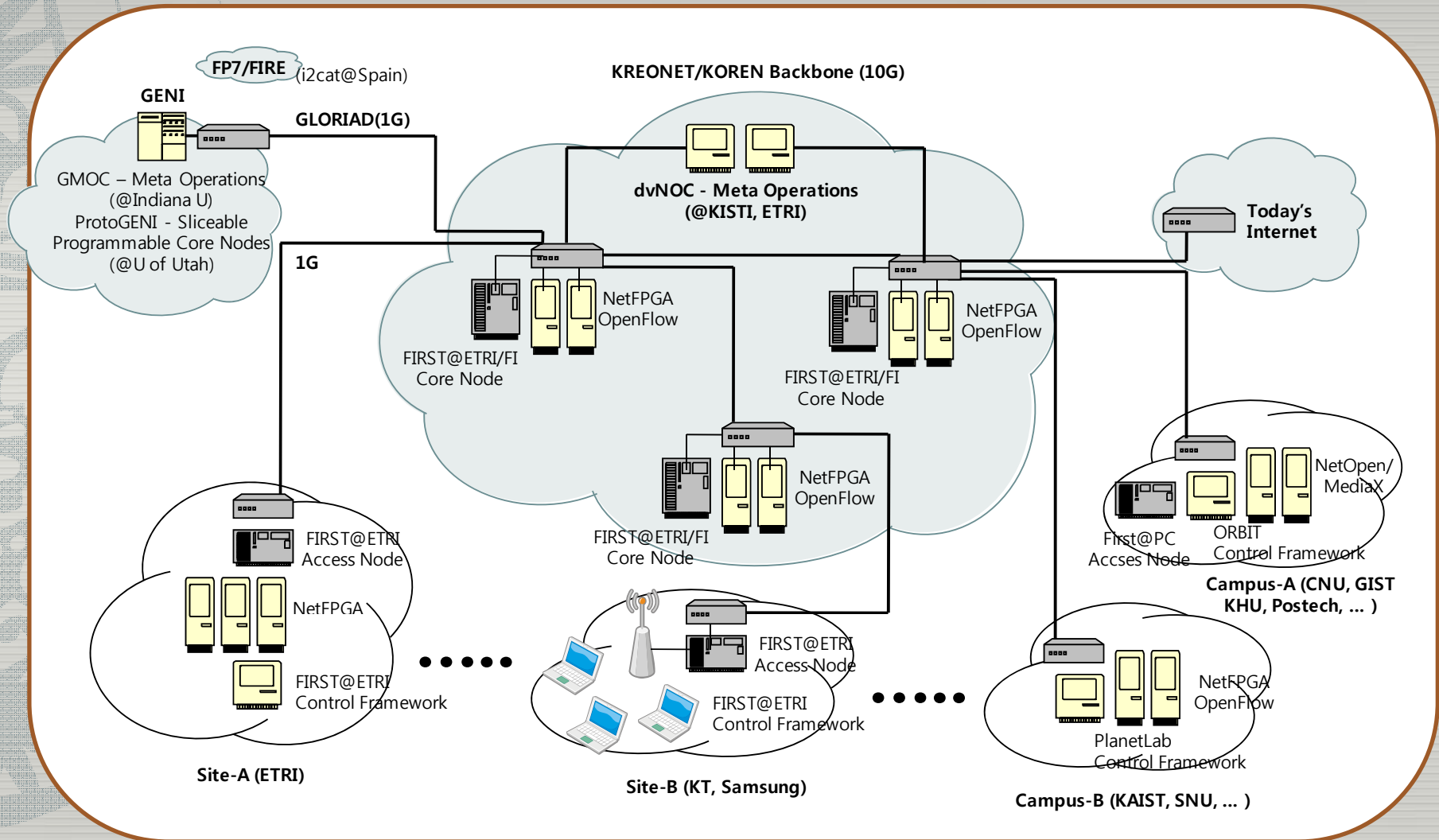
- Dynamic resource allocation to sliver/link
 - Computing resources
 - CPU, memory, storage...
 - Network resources
 - Link ...



VPR - Virtualized Programmable Router

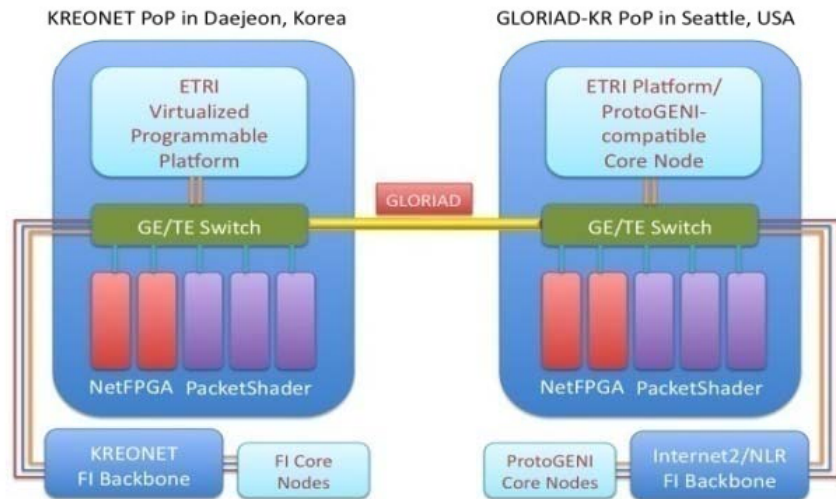


Platform Deployment



K-GENI Network

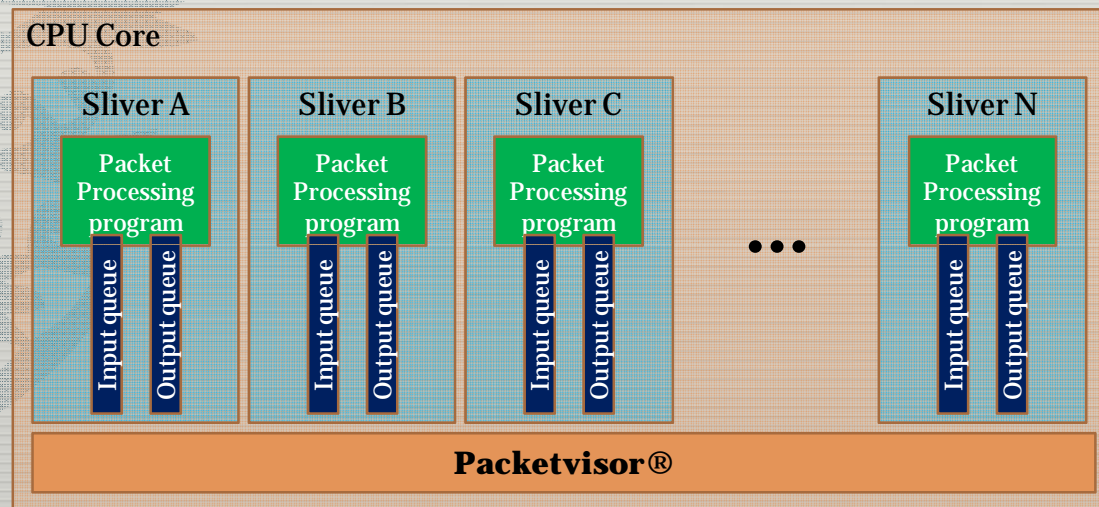
FI Node Interconnections I



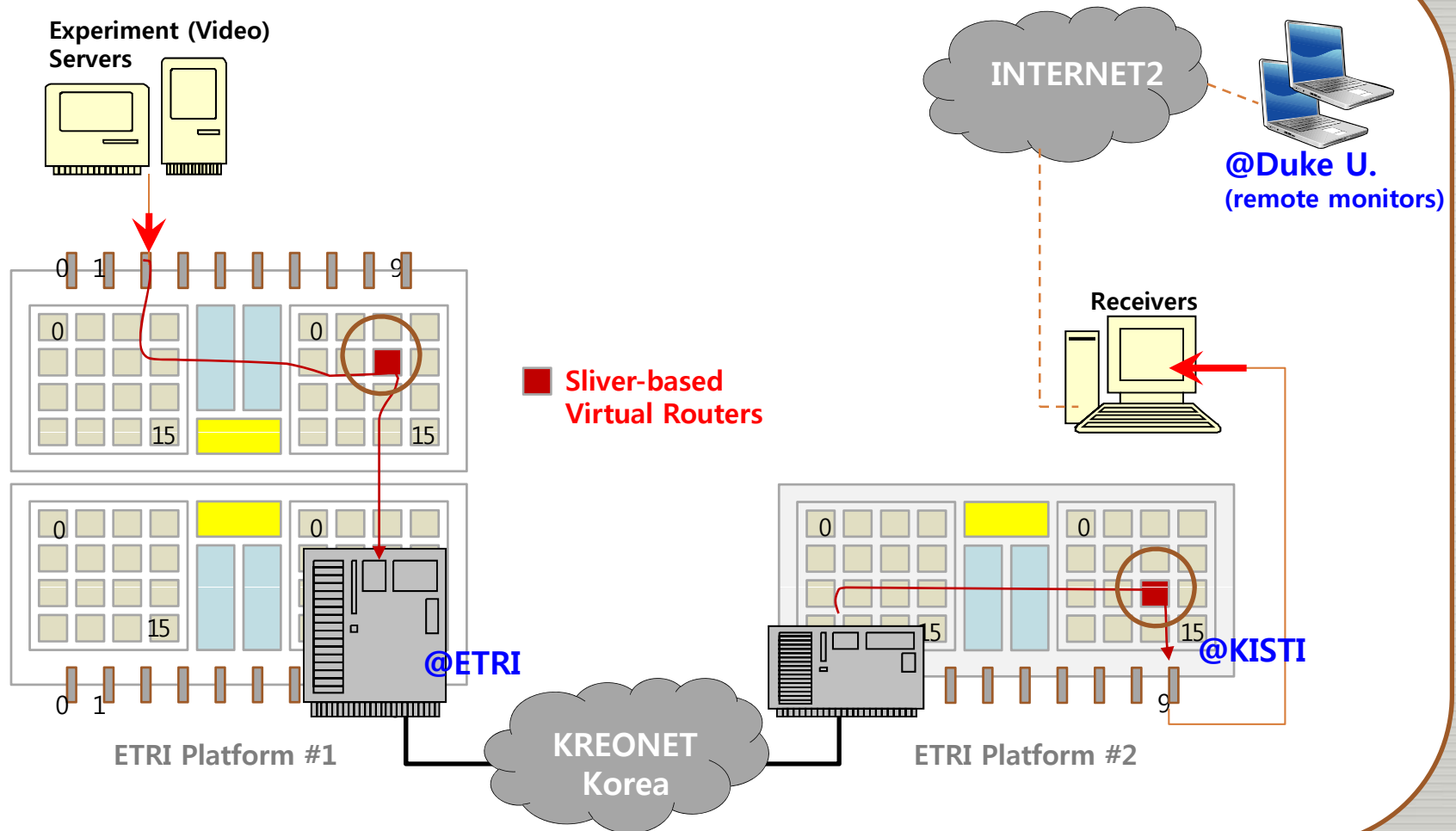
- Provisioned: ETRI (Korea) – Seattle Lightpath (1G)
 - Waiting for cross-connections (L2) in Seattle (I2)
- Next steps
 - (Dedicated) Lightpath extension to ProtoGENI in Seattle or Utah
 - VLAN connections between ETRI and ProtoGENI nodes
 - **Control integrations (Utah)**
 - **ProtoGENI adapters (GEC8)**
 - Meta Operations (G-MOC) on K-GENI (IU)

Today's Demo

- (Simple) Packetvisor®
 - Load multiple images (experiments) on 1 CPU Core
 - Multiple slivers scheduling
 - **Dynamic CPU resource allocation on slivers**
 - I/O queues virtualization



Demo Network Configuration



1.5MHz Router → 3MHz Router

미디어(M) 재생(L) 오디오(A) 비디오(V) 도구(T) 보기(I) 도움말(H)

GOMTV

