GLIF end-to-end architectures: a perspective

Inder Monga
Bill St. Arnaud
Erik-Jan Bos

GLIF Recap

What is GLIF?

- GLIF is
  - international virtual organization
  - based on a number of lambdas connected
  - contributed by the GLIF participants who own or lease them
  - interconnected through a series of exchange points
  - for use by scientists and projects involved in data-intensive science research
  - establish best practices, work together
  - to enable the development, testing and implementation of
    - new lambda networking technologies,
    - middleware and
    - applications

http://www.glif.is/publications/info/brochure.pdf

GLIF Resources Now

- lambdas
- GOLE's (interconnects)
- lightpaths (virtual paths)

Not just physical assets: how to use them effectively

- automated GOLEs
  - FENIUS and NSI infrastructure
  - DTOX
  - NSI Implementation
  - performance verification

GLIF Vision

GLIF Playground

	Research	Prototype	Market
Applications	*research* →		*production*
Middleware	*drives innovation* ↓		
Network			

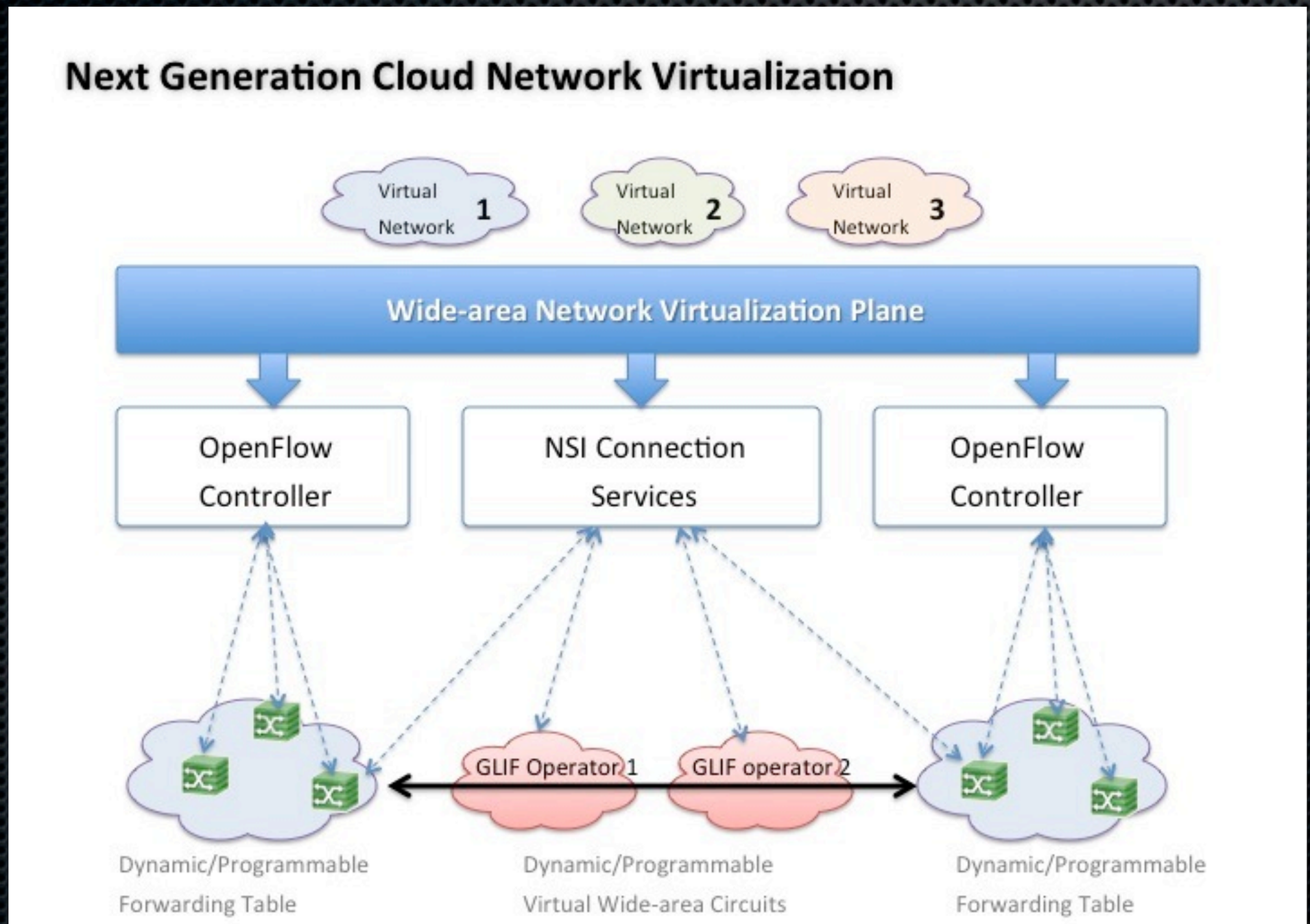
GLIF works!

GLIF Playground

	Research	Prototype	Market
Applications		RAP WG — *HPDMnet, Cinegrid*	
Middleware		Tech WG — *GNI API, AutoGOLE, DTOX*	
Network		Network Resources — *lambda, GOLE, lightpath*	

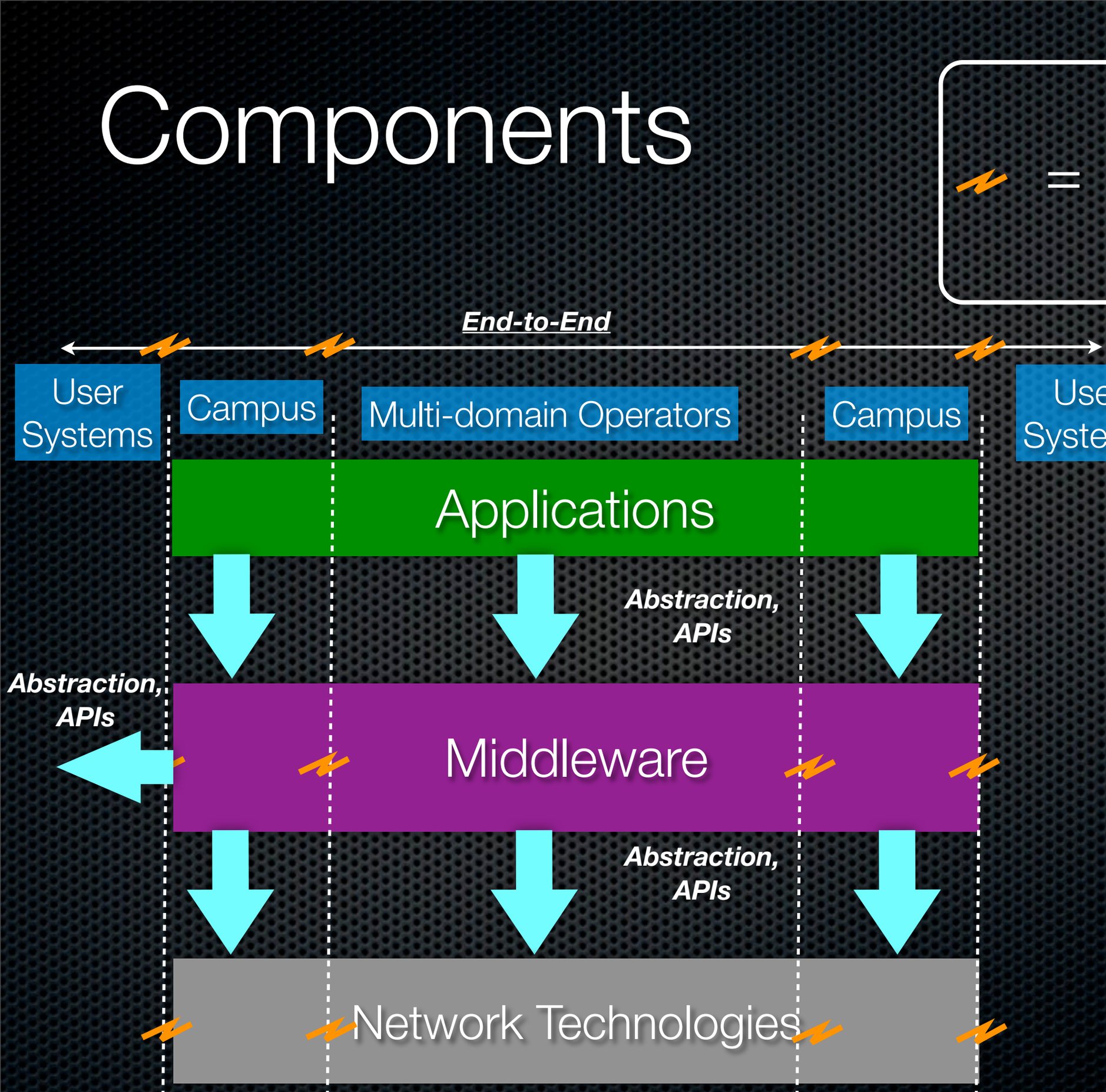
GLIF Architecture:
an end-to-end approach

One integrated approach



Components

technology mismatch
policy
trust
security
sharing of data



Examples

Globus online, HPDMnet

Network Services Interface

Topology Discovery and Sharing

Software Defined Networks

Embedded Control Planes, PCE Architectures

Discussion

- GLIF work on an end-to-end architecture for science
  - Clear articulation of impact of GLIF architecture
- Integration of applications, middleware, tools and network interfaces is key
  - Commonly understood data formats
- End-to-end applications like Globus Online and HPDMnet be used to demonstrate successful API integration
- Transition solutions from **Prototype** to **Production**