GENI Technical Priorities

The experimenter and educators perspective

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geared towards current capabilities

Maintain

Improve

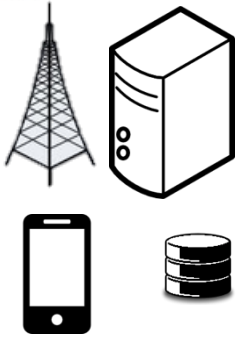
Enhance

New

Essential

budget not considered

Useful



Hardware

powered on
connected
healthy
running

`omni jacks clearinghouse am wireless portal`

Software

maintained
patched
compliant to latest standards (images, etc)

maintain

User support

technical support
debugging
resource reservations

geni
Exploring Networks of the Future

maintain

Programmable Topologies

openflow
click
in-network
computation, storage

Multi-site Topologies

physical
connectivity
SCS
stitcher

"*I would say the **hardest part** of the testbed is to actually **load all the VMs** successfully. Once **everything is up**, it **works** really **well**.*"

Reliability
Stability

improve success %

(?) improve sw

(?) guide the user

(?) catch problems early

….

improve

help user figure out what exists and what is possible

Documentation

maintain current material

(tutorials, FAQs, tips)

create new material

(available resources, capabilities, deployed hardware, tools)

improve

Programmable Topologies

better tool support, interference of hybrid deployment hardware support

Multi-site Topologies

more stable complex topologies greater availability (sites, VLANs) more bandwidth (current sliced too thinly)

Consistency

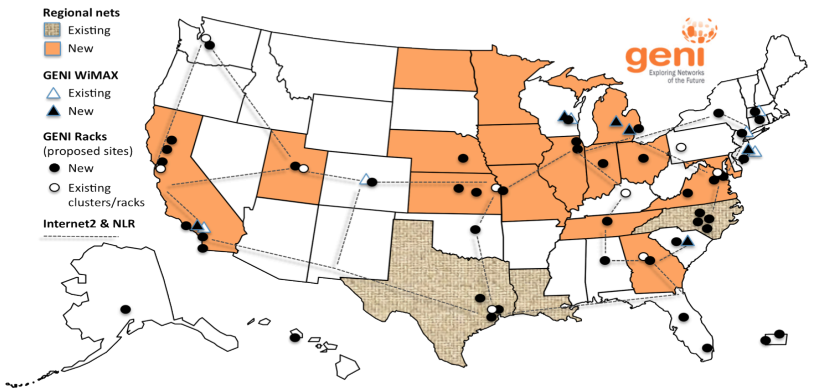
similar aggregates – similar basic functionalities (e.g. support same AM API version)

Federation

Authentication
Authorization
Policies
dataplane

Monitoring

realtime dashboard integrated with tools



Expand footprint

bigger sites
more sites

improve

More network control

Bandwidth limit enforcement, bandwidth provisioning, prioritized traffic, delay, loss.

Dynamic Resource Reservation

better support for complex configurations -
partial reservations
add resources as needed (scarce resources)
grow shrink slice based on testbed/experiment status

Modern Hardware

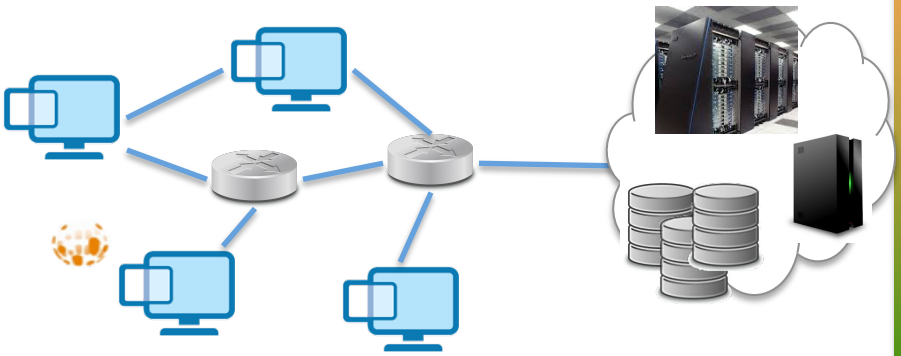
LTE
Infiniband
OpenFlow 1.3
support for DPDK
storage

enhance

Integration of Wired/Wireless

better tooling
easy to include wireless resources in wired experiment and vice versa

Stitching to external resources



enhance

Better Tooling

repeat experiments orchestrate complex deployments

port from other systems (mininet, NS3, AWS)

Running Services

dynamic slices

routable IPs on dataplane

longer/consistent expiration times

Advanced Reservations

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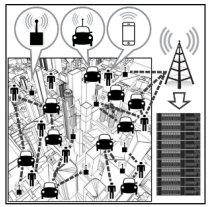
Exploring Networks of the Future

Diverse, exotic resources

Support low latency, interactive apps

new

Interoperate with other stuff



Keep what we have

Make it more reliable/stable

Make it more dynamic