

GENI Transition Activities UMD/MAX

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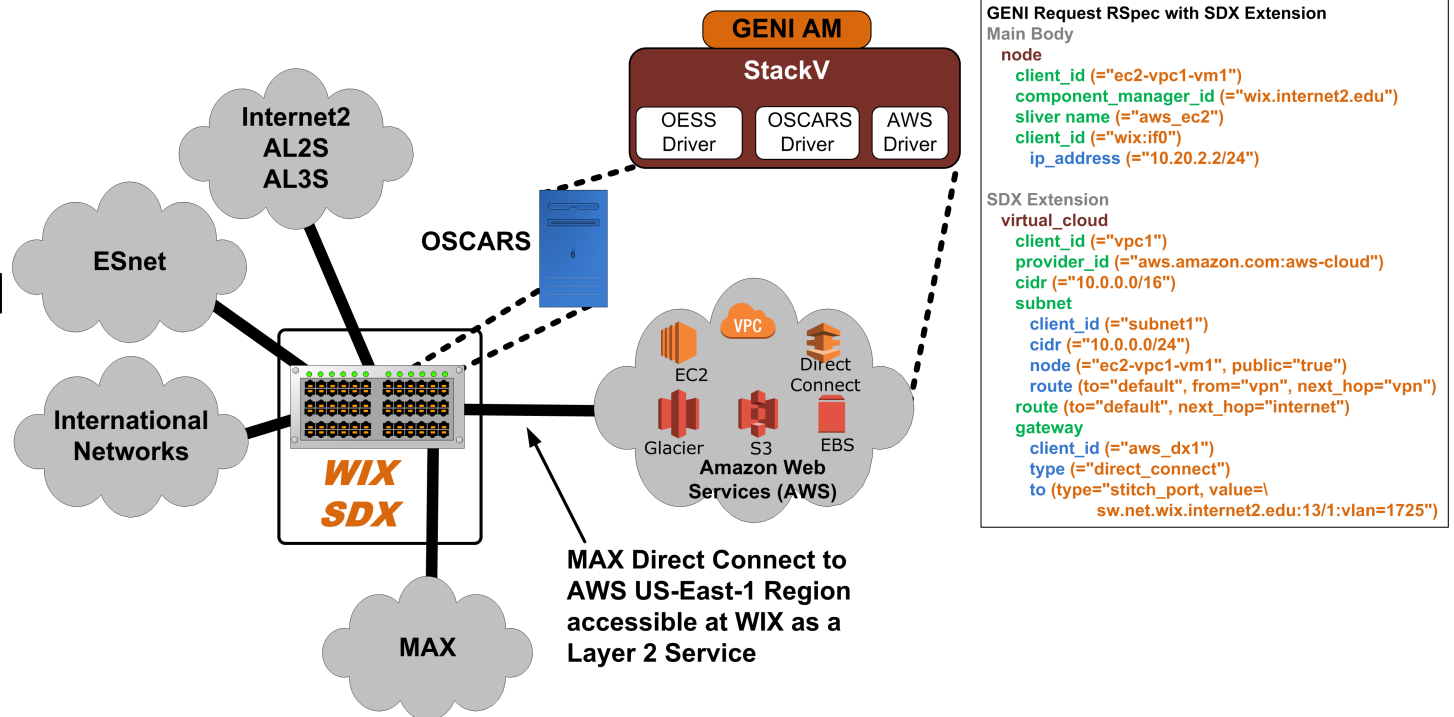
GENI Transition Activities

- Support, maintenance, and updates for Stitching Computation Service (SCS)
 - Production SCS (run by GRNOC)
 - Test SCS (run by UMD/MAX)
 - Software: <https://github.com/xi-yang/MXTCE-GENI-SCS>
- General GENI Stitching support and troubleshooting
- MAX DCN GENI Aggregate Manager
 - Software: <https://github.com/xi-yang/GENI-DCN-AM>
 - For OSCARS and NSI network regions
 - GRAM GENI AM based
- Information: <https://wiki.maxgigapop.net/twiki/bin/view/GENI/NetworkStitchingSoftware>

WIX SDX

- WIX is a production Exchange Point in McLean, Virginia (jointly operated by Internet2 and MAX)
- Includes OSCARS service enabling Dynamic Cross Connects
- MAX has made its AWS Direct Connect Service available at the WIX via Layer2 VLAN service
- MAX runs a GENI AM/StackV instance with OSCARS and AWS drivers

- GENI
Stitching to
WIX for GENI
Slice with
AWS
attachment



WIX SDX – Transition to GENI Operational Status

- GENI Enabled WIX SDX
 - Hopefully transition to GENI Operational Status
 - Add WIX Aggregate Manager and inter-aggregate links to AL2S, MAX to GENI Operational topologies
 - Work with GRNOC to figure out how to monitor and maintain
 - Make WIX SDX including access to AWS Direct Connect (with some local access policies) generally available to GENI Federation
 - MAX AM - SDX open source at <https://github.com/xi-yang/GENI-DCN-AM/tree/SDX-0.2>
 - UMD/MAX developed StackV is an open source model driven orchestration system: github.com/MAX-UMD/stackV.community

GENI Development

- MAX InstaGENI Rack
 - Move dataplane connections to the UMD/MAX Software Defined ScienceDMZ (SD-SDMZ)
 - Add multiple dataplane connections to facilitate building of topologies to WIX SDX, AL2S, and UMD/MAX SD-SDMZ
 - Possibly upgrade dataplane connections to 10G
- GENI Enabled Software Defined ScienceDMZ (SD-SDMZ)
 - Continued development for GENI AM on top of Software Defined ScienceDMZ at UMD/MAX
- GENI Enabled Software Defined Exchange (SDX) at WIX
 - Additional policy granularity
 - Dynamic policy adjustments
 - Integrate additional external resources, possibly including Rackspace, Microsoft Azure, Google Cloud, or Equinix Cloud Exchange

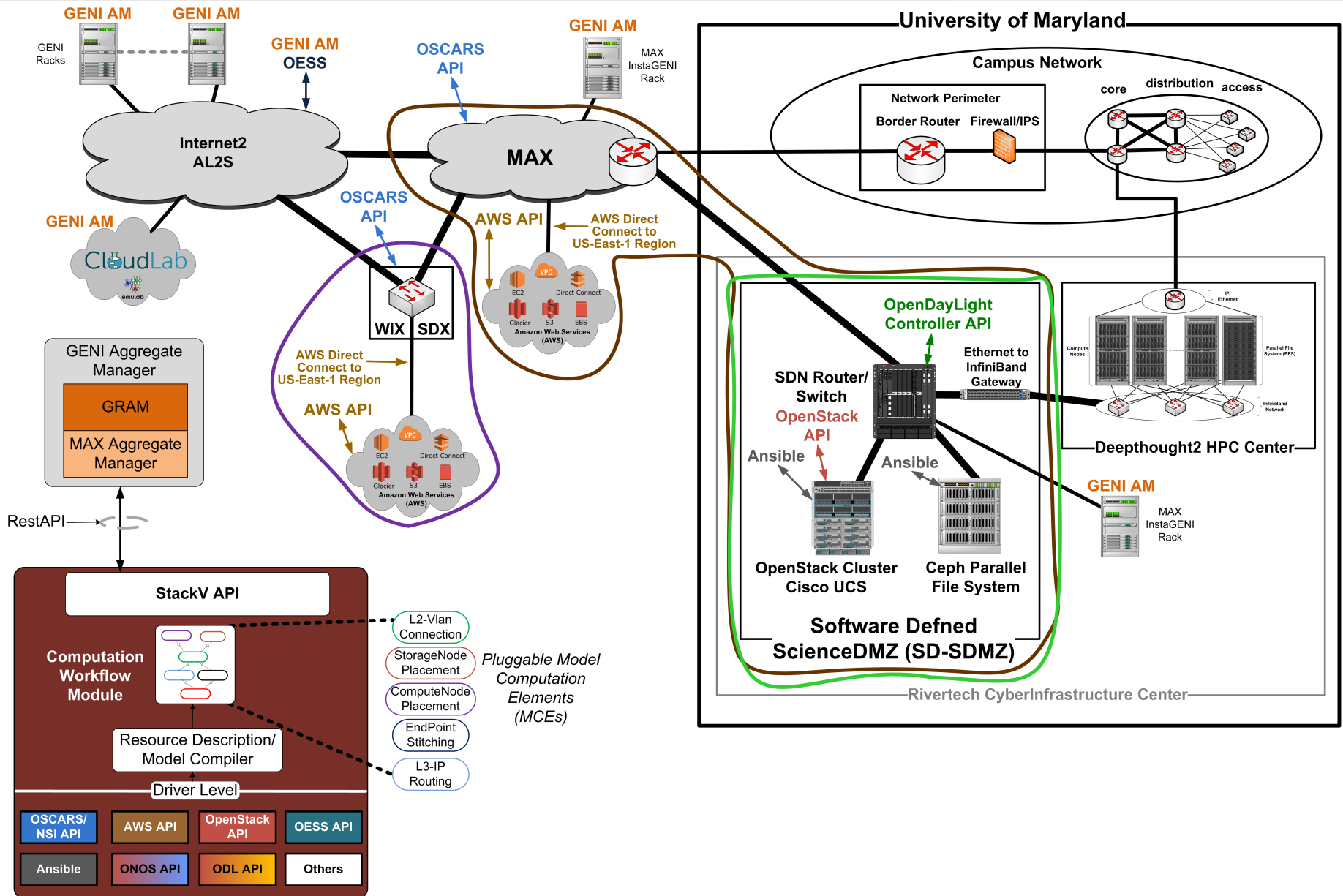


Extras

GRAM based GENI AM Policy Control for SDX and SD-SDMZ

- GRAM with ABAC like policy features for resource access control:
 - Federation(Clearinghouse), Virtual Organization (Project), Slice, User
 - VLANs (total), Bandwidth, VMs, Ceph Storage, SR-IOVs
- Future Features Desired:
 - Realtime policy adjustments
 - More policy granularity (specific VLANs, resources)
 - SDXs with compute and storage embedded

Software Defined in Context of R&E Cyberinfrastructure





Thanks