Eucalyptus: A Service-oriented Participatory Design Studio

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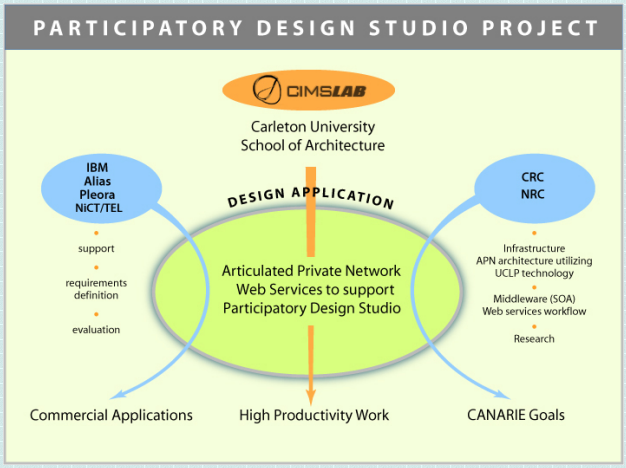
What is Eucalyptus?

A service-oriented solution to manage and configure the resources needed by users engaging in a participatory design session.

Motivations

- Many high-end resources are not available in most labs – remote access needed
- Most end users are not IT experts
- Need to hide the tools' logistical and provisioning complexities
- Design teams are distributed in different geographical locations
- Require on-demand configuration of resources depending on the task at hand, available resources, particularly the available network bandwidth to support participatory design sessions.



For Whom?

- Architects of buildings
- Can be extended to the Architecture, Engineering, Construction (AEC), industrial design, and the automotive industries.

Key Features

- ✓ Easy to configure
- ✓ Business process management
- ✓ Programming language and platform independent
- ✓ Shared high-performance visualization tools
- ✓ Shared high-definition videoconference
- ✓ Service-oriented: **Web Services (WS)**
- ✓ Supported by 1to10Gb/s user-controlled Articulated Private Networks (APNs)
- ✓ Integration of the SOA with UCLPv2

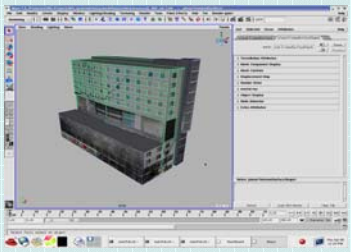
Supported by User-Controlled Lightpath Provisioning (UCLP)

- Treats network resources as software objects
- End-users can provision and reconfigure lightpaths on-demand to form their own private end-to-end optical networks, called

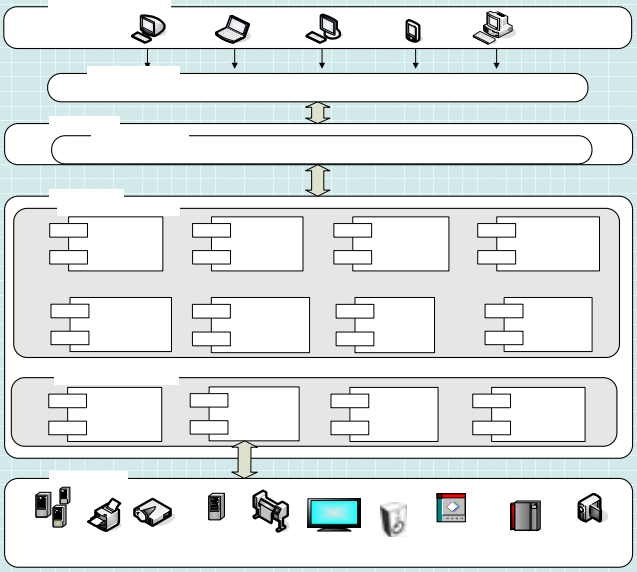
Articulated Private Networks (APNs).

- High speed, low latency APNs can accommodate rich media traffic required by user communities.

- Distance collaboration facilitated by shared access to Alias Systems MAYA with the support of Shared Desktop Web Service and DCV Web Service, allowing visualization resolution up to 9.2 million pixels.



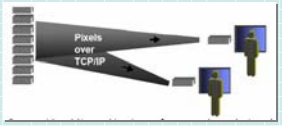
System Architecture Design



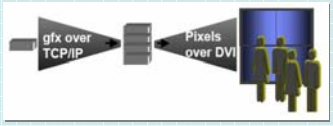
Deep Computing Visualization (DCV) Web Service

Provides a scalable, collaborative, middleware infrastructure to support and enhance the graphics functions of OpenGL software in two visualization modes:

Remote Visual Networking (RVN)

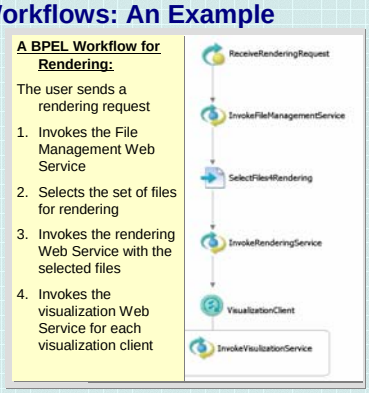


Scalable Visual Networking (SVN)



PDS Dashboard (GUI) – Eclipse Rich Client Platform (RCP)

Composing Web Services into Workflows: An Example



Expected Impact

The emergence of SOA and UCLP herald the beginning of a new age where fully collaborative multi-site design may become the norm.
The advanced network user community will benefit from the structure and function of PDS.