

Access Grid Technical Overview

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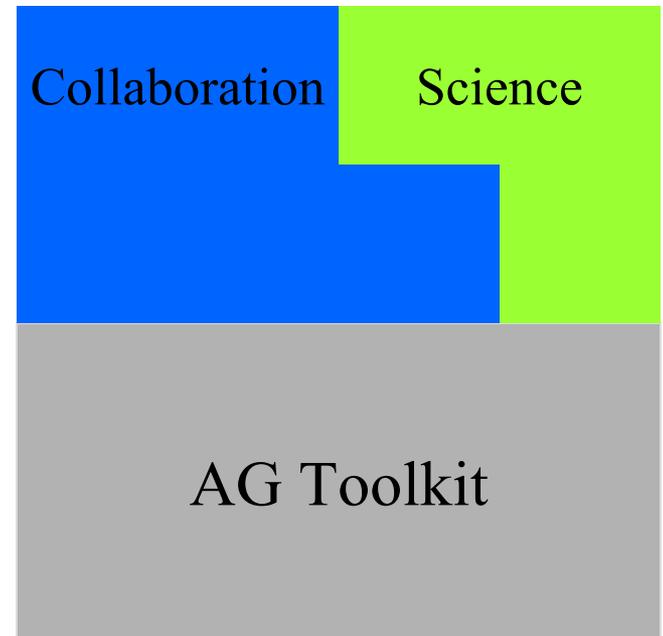


Overview

- Project Goals
- Architecture and Design
- Evaluation
- AG3

Project Goals

- Group-to-group Conferencing
 - audio
 - video
 - conferencing domain applications
 - presentation tools
 - whiteboard
 - recording
- Collaborative Science
 - science domain applications
 - analysis
 - visualization
 - instrument control
 - compute resources
 - data resources
 - workflow support



High-level Architecture

Virtual Venue

Venue Client

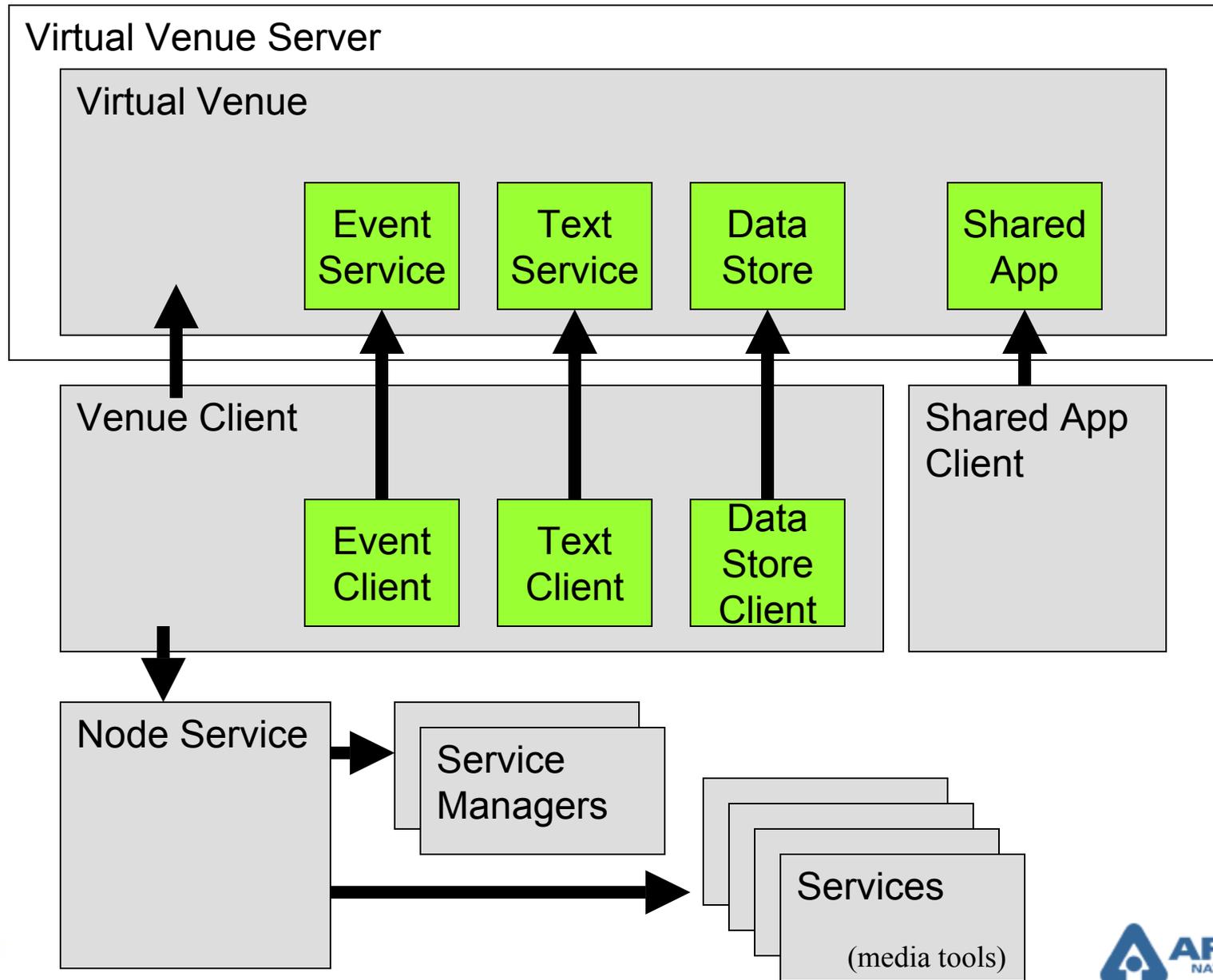
High-level Architecture

Virtual Venue

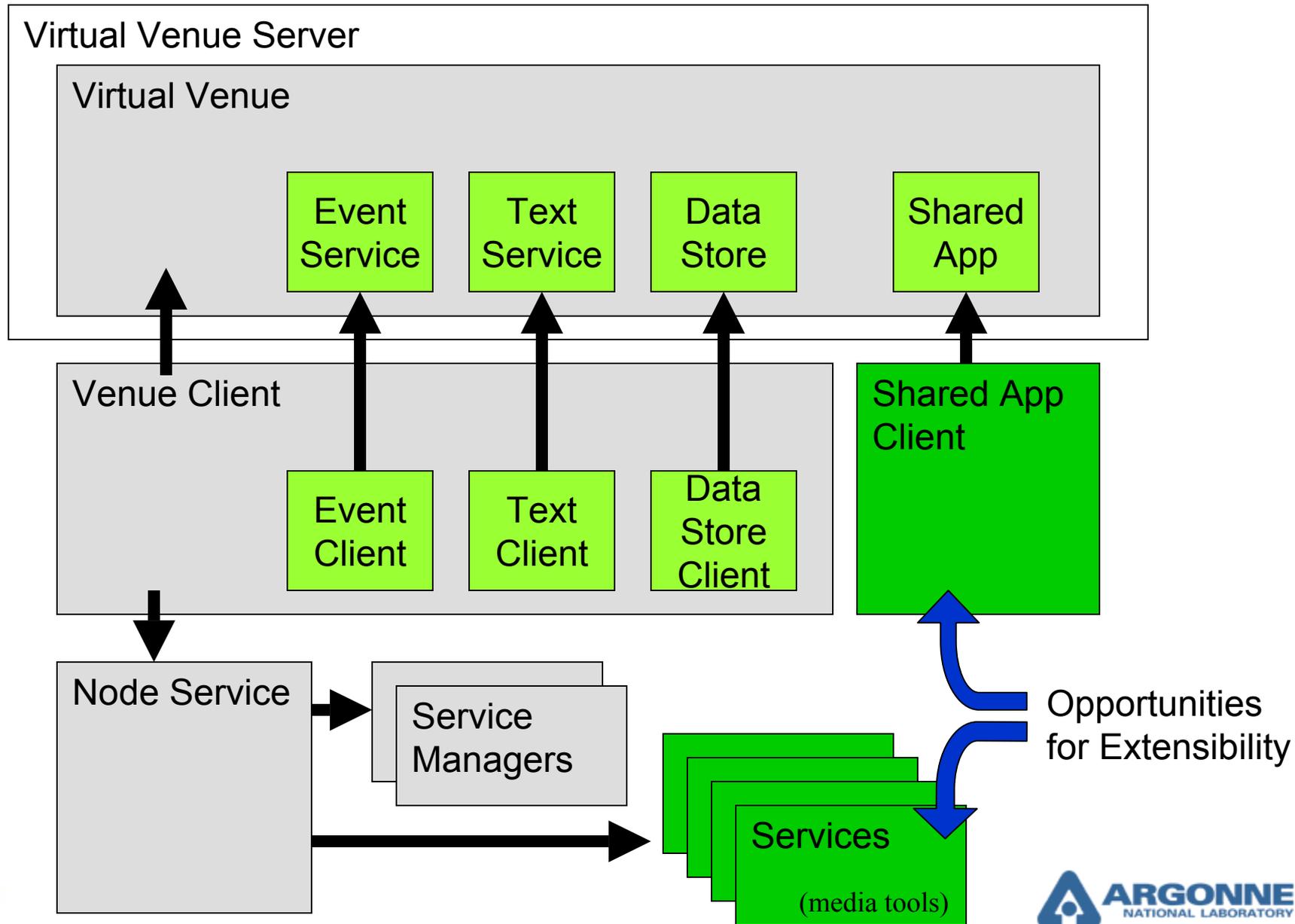
Venue Client

Node

Detailed Architecture



Detailed Architecture



Design Choices

- RPC
 - SOAP (SOAPpy) over GSITCP
- Event and Text Services
 - Pickled Python objects over asynchronous GSITCP
- Data Store
 - HTTP over GSITCP
- X509 Certificates, single signon
 - SimpleCA, Globus proxying code
 - pyOpenSSL

Have we succeeded?

Downloads (from outside Argonne)

OS X : 600+

Windows : 3900+

Gentoo : 290+

Fedora/Debian/Slackware/FreeBSD :
1000+

Certificates

AG Dev CA:

3400+ certificates, 47 countries

Anonymous CA: 1400+ certificates

Venue Servers

Argonne vv2 server has been entered
19000+ times this year

vv2 uptime : 95%

Over ten venue servers outside
Argonne

Broadening developer base

Communities

EuroAG

Asia-Pacific Access Grid

Access Grid Canada

Access Grid Korea

Science domains

Advanced Photon Source

National Fusion Collaboratory

HPC Europa

TeraGrid

WestGrid

UC ASC Flash Center

LEAD Project

What have we learned?

- Standards-based tech is important for robustness and interoperability
- GSITCP doesn't belong inside the AG toolkit
- Access Grid platform space broader than that of Globus
 - currently doesn't support Windows, OS X
 - portables?
- Security and user friendliness are rather opposed
 - Despite very good support for certificate handling, it remains a hurdle
- Security is hard



AG3

Corrections to the course

- RPC
 - SOAP (ZSI) over SSL
- Event Service
 - XML over SSL
- Text Service
 - Jabber
- Data Store
 - HTTP over SSL
- X509 Certificates, single signon
 - Certificate Service
 - M2crypto



AG3

Additions

- User preferences
- Bonjour (formerly Rendezvous)
 - Simplify node configuration
 - Enable node repair
- Boot scripts
- Headless media tools
 - OpenMash-based VideoProducer
- Integrated multicast beacon



Questions?

