Towards Constriction of Academic Application Cloud

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Construct Application Platform and Improved Universal Academic Services over Cloud Server Systems with Inter-University Authentication Cooperation

Background

- Services become infrastructure
  - Wide spread as free, Insufficient features / dependability / spam protection
- Increase of operation cost
  - Responsibility for administration, Security management, User support
- Increase of disparity on service quality between universities
  - Demand for varied service, efficiency (cost cut, personnel reduction)
- Appearance of large scale service providers
  - Retrogression to centralization (cost performance), Web2.0
- Distrust of out-sourcing services
  - Continuity, Dependability, Black-Box, Foreign entities, Confidence management

Goal

- Reduce operation cost, Improve dependability
  - Centralizing, Out-Sourcing, Scalability, Appropriate redundancy / compatibility
- Improve averaged service quality, Reduce disparity
  - High availability, Effective virus / spam protection
- Improve level of research / education by service enhancement
  - Expansion of academic service, support for inter-university activities / communities
- Activate creation of new services, Industry-Academia collaboration
  - Utilize mash-up technologies, generation of services with targeting long-tail
- Sustain / Improve technical level of operators, Training (prevent hollowing)
  - White-box, flexibility for customizing / original service (be a Service Delivery Platform)
- Construct distributed services over integrated service platform
  - Regain the initiative

## Transition of Service Platform Architecture
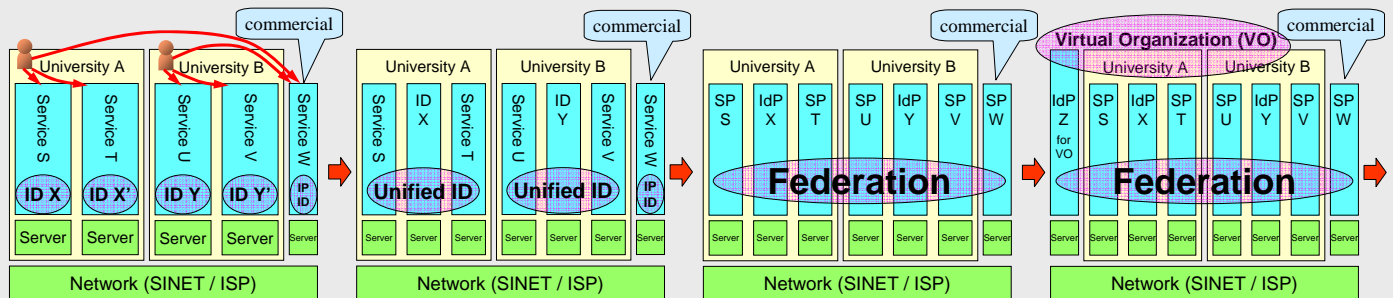
- Many Independent Services
  - Distributed Services (Downsizing)
  - Pure Client-Server Model
- Many IDs and Passwords
  - Troublesome for Users

- Unified ID management
- Single Sign On (SSO) (within an organization)
- E-Journals are still using IP-address based authentication

- Establishing Federation
  - Inter-Organization Authentication Cooperation (Including e-Journal Providers)
  - Shibboleth/SAML for disclosure control of user attributes

- IdP for Virtual Organization (VO)
  - Academic Societies
  - Research Groups
  - Inter-University Projects
- Service Sharing
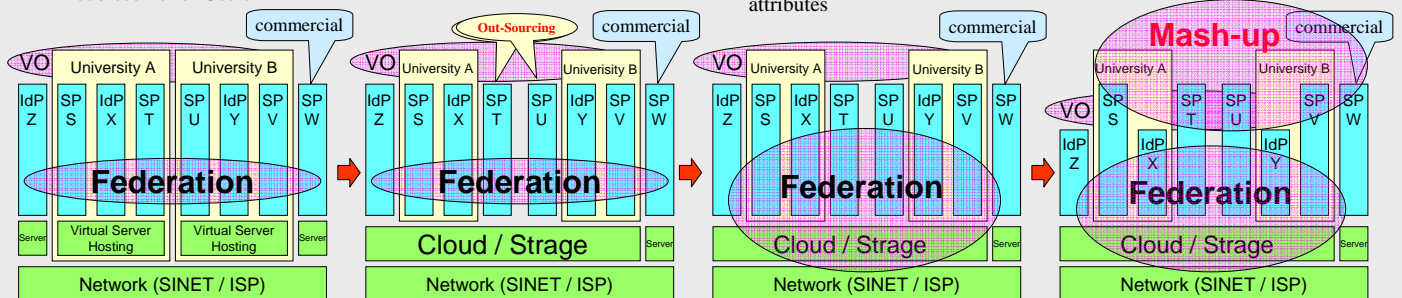
- Virtualization Technology
- Platform Sharing
  - Cost Reduction

- Cloud Technology / Services
- Out-Sourcing
  - Encourage New Academic Services provided by Commercial

- Could/Storage/Network (VPN) as a SP in the Federation

- Mashed-up services
  - Systematic Cooperation of Applications
- Improving User Experience by application itself

Investigating Academic Service Architectures using Federation Mechanism

- Content Delivery Services
- Network Services (VPN, Roaming, etc.)
- Video Conferencing Services
- E-mail Services
- Community (VO) Supporting Services
- Computation / Storage Services
etc.