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Cooking in the Cloud: Planning for Cloud Service Integration

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What's Driving Us Into The Cloud?

- Hint: it's not (mostly) about saving money
- Speed of innovation
- Responding to elasticity of demand
- Taking advantage of scale - geographic redundancy, backups, etc.

Challenges

- Hint: Integration is not first on the list
- Contract language (FERPA, HIPAA, intellectual property)
- Billing and price aggregation across distributed units
- THEN integration. Don't tell me it's complicated to do it right. Tell me how to get started quickly and simply, even if we don't get all the bells and whistles.

Differences from Local Deployment

- Provisioning / Deprovisioning
- Policy Alignment
- User Support
- Loss of control: both financially and technically
- Vendor models cater to corporate/enterprise norms, not university technical models

What is the CIC?

- Committee on Institutional Cooperation
- Collaborative effort between the Big Ten schools and the University of Chicago
- The CIC's size, technical breadth, and collaborative environment gives broad input and insight to this project.
- In the CIC, even a “small” federated service can be used by hundreds or thousands of users. Increased scale makes following best practices even more important.

What is the Cloud Service Cookbook?

- Best practices and recommendations for implementing federated services for campuses and cloud service operators
- Recipes that save resources: it's important to eat, but if you mix hot pepper, chocolate, vinegar and mustard, the result won't be worth eating, and the entire product will need to be thrown out...
- Well-developed and tested recipes from some of the most experienced kitchens

Why a Cloud Service Cookbook?

- Oranges and garlic
 - Vendors might not tell you everything you need to do; they might not even know. The cookbook will point out things that the vendor doesn't.
- Frozen pizza
 - It's easy to cut corners when it means more cost to someone else.

Four Stages of Cloud Service Adoption

- Denial, anger, bargaining, and acceptance?
- Awareness
- Economics
- Smart shopping
- Smart integration

Awareness

- We don't need to sell you on the benefits of cloud services. They clearly can save resources if the process is done right from the start.
- Be aware: Know your needs and your internal systems and processes.
- Not knowing enough might get you pigeon-holed into something that causes more harm than good.

Economics

- If done right, integration with an existing system can be far faster than building your own.
- Doing it right involves having your own ducks in a row and using a vendor who follows standards and best practices.

Smart Shopping

- There may be many options in the cloud.
- Knowing the right things to ask can speed up integration, ease user support, and save money.
- Internet2's Net+ offerings might serve as good guidance, but there are also many options to consider outside of Net+.
- Understand what you need out of a service rather than letting the service's capabilities determine what you can get.

Smart Integration

- Start with the end in mind.
- Create policies, a provisioning and deprovisioning strategy, and plans for authentication/authorization before doing anything else.

Case Study: What's in a username?

- Illinois had an existing partnership with a cloud service for student assessments.
- In moving from vendor's built-in authentication to Shibboleth, wanted us to re-define an existing attribute to match existing usernames.
- Vendor, once they understood the situation, was easily able to transform their locally stored usernames.
- Advice: don't re-define an attribute for use by a single vendor, and don't just take the first "no" as a final answer.

Case Study: The Customer is Always Right

- OSU starting to take a harder line on InCommon membership and usage for vendors.
- Vendor on a recent project signed the membership agreement faster than the sponsoring e-mail was sent.
- Effort to support services that register metadata and support dynamic provisioning with InCommon is drastically reduced.
- Advice: force vendors to do the right thing and we all benefit.

Technical Pointer: Attribute Release

- For those operating or planning to operate an InCommon IdP, consider a more relaxed attribute release policy.
- Providing standard attributes such as name and affiliation to trusted services avoids per-service negotiation and expands the value of your IdP.
- Consider the InCommon Research & Scholarship Category as an entry point.

Technical Pointer: Join a Federation

- Leveraging trust models, metadata aggregates, and operational agreements can save time and money.
- It's easier to trust when everyone's on the same page for good operating practices.
- Federation based on metadata distribution eases on-boarding services and revocation of compromised keys.

Conclusion

- Cookbook draft:
<https://carmenwiki.osu.edu/x/nLdCAg>
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