

Federated Identity Management

AKA, Identity Federation or just Federation

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SANReN

14th October 2013

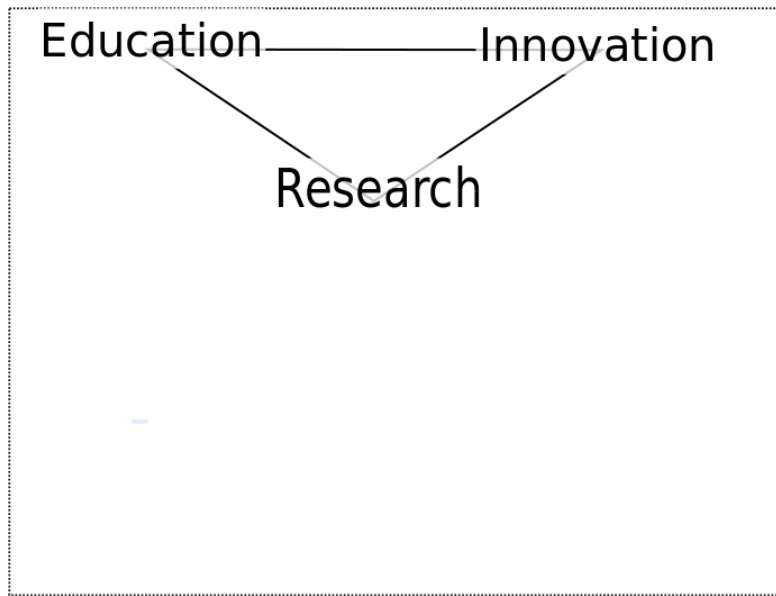
Outline of what you should get out of this talk!

- 1 What is an identity federation?
- 2 Why do we need identity federation?
- 3 What are the concepts that are important in understanding identity management?
- 4 What are we doing in South Africa around identity federations?

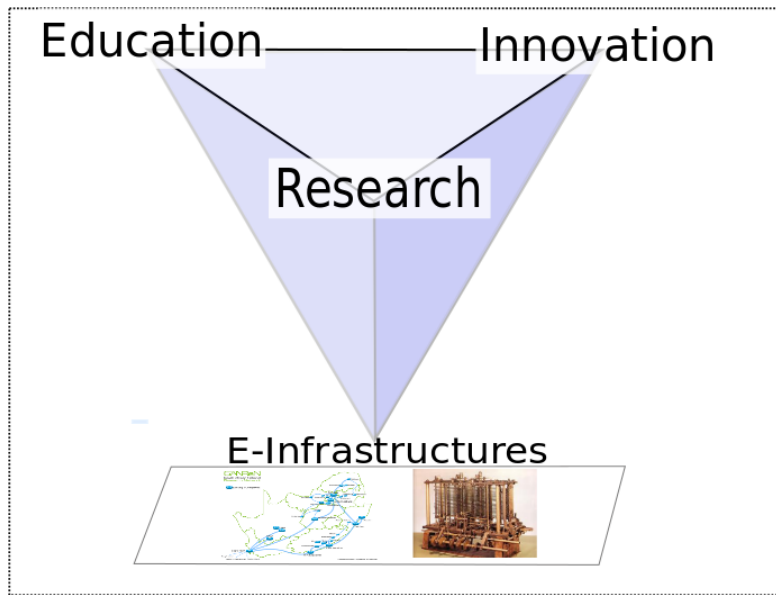
Context - Knowledge Triangle



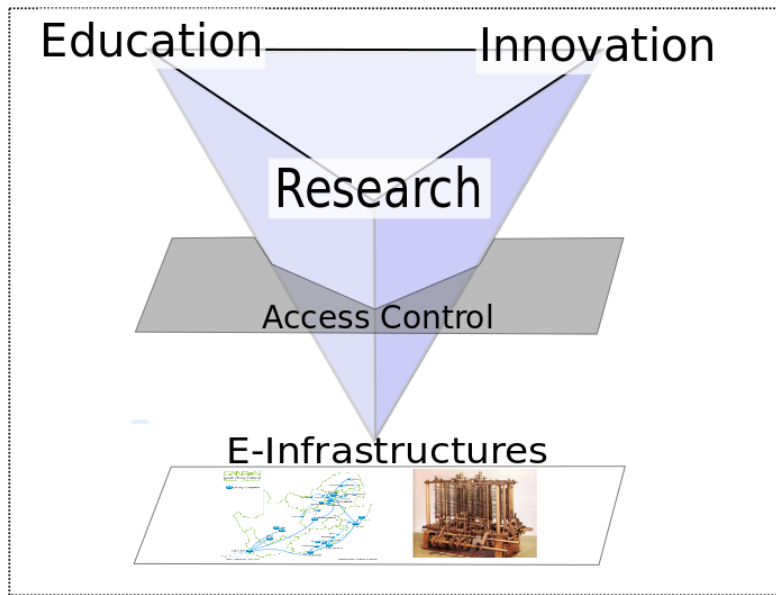
Knowledge Triangle: Change of Perspective 1'



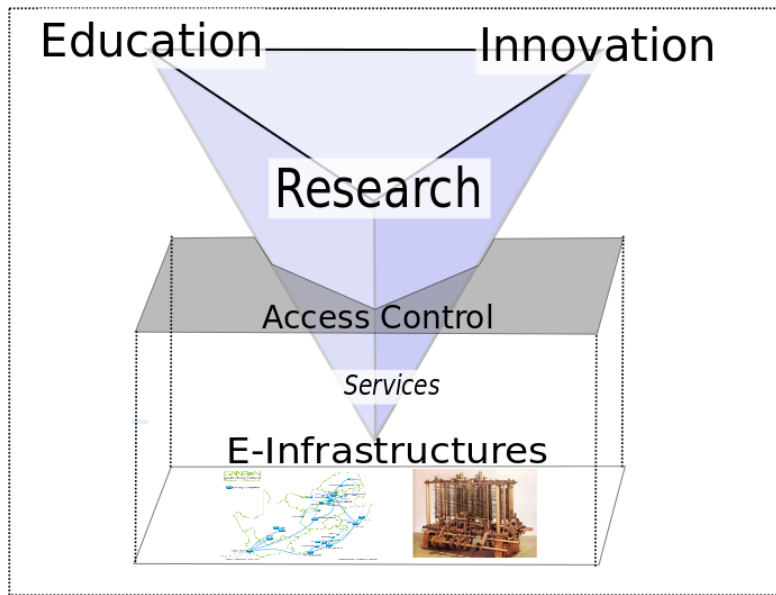
Knowledge Triangle: Change of Perspective 2



Knowledge Triangle: Change of Perspective 3



Knowledge Triangle: Change of Perspective 4



Roleplayers for the Federation

- An organisation's ICT department
- The Users
- The Service Provider

Everyone wants everything?

Conflicting requirements?

The following are very important to an organisation's ICT team

- Legislation
- Security
- Control

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- Convenience
- Ease of use
- Freedom
- Privacy? (*maybe*)

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- Ease of use
- Freedom
- Privacy? (*maybe*)

And Service providers want

- Access control
- User information
- Compensation (*maybe*)

Time for a scenario.

I need a volunteer.

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- Our volunteer is planning to start an internet travel agency.
- He is also a lover of dinosaurs and therefore he is planning on giving all archeologists a 20% discount on flights

Concepts a person should know to understand Identity Federation

What I have *tried to* show is that most people intuitively understand the following concepts (even if the technical terms are a bit new):

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- User verified data
- Trusted data
- Identity providers
- Service provider
- Trust framework

One last concept

'When you hear the word "Federation" what do you think about?'

One last concept

'When you hear the word "Federation" what do you think about?'

Control

Purpose

Union

Trust

Political System

Autonomy

Centralised?

Bringing it all together!

With all that, we can describe an Identity Federation as:

- Entities coming together to allow identities to be authenticated between one other, to provide users access to services without divulging unnecessary information to the service, while at the same time providing services seamless access to identities between institutions.

Alternatively, we can describe it as

- A distributed, purpose driven, closed, identity management platform.

How do we implement this?

This part is not very important for this discussion.
Come talk to me privately.

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Come talk to me privately.

But the most important aspects are:

- 1 Creating a framework for trust between entities
- 2 Defining/Decide on a common language between entities (SAML)

What's in it for me?

Everyone is selfish, so depending on the perspective you take, the reasons to implement a Federation will be different.

- For a SP, the reasons might range from being cost effective, to having access to a large number of users
- For an IdP, there are some technical efficiencies and financial incentives to be gained
- And for the user, the reason could simply be convenience.

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However, one thing that is common among all perspectives is that it makes it easier for users and services to come together.

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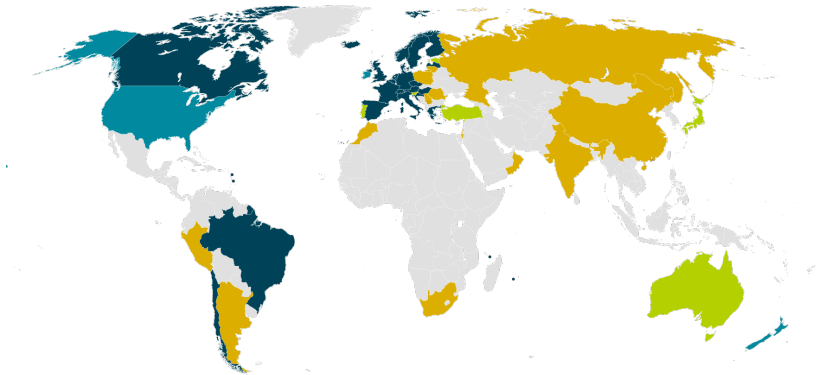
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- Large/well established services can be largely indifferent on whether a Federation exists
- Having a Federation allows services to almost solely focus on their service and leave the identity management to the federation.
- In my opinion, this is the main reason why Federation is a good thing.

Research and education identity federations

The concept of Federation is not new and, especially in the Research & education sphere, it is quite widely deployed in developed nations. And these nations are moving on to ideas such as interfederation through initiatives like eduGAIN.

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Source: Brook Schofield, Terena

'Could we assume that everyone is friendly to the idea?'

The SA environment had the following challenges (not unique to us though):

- Culture - SA's IT environment is very conservative
- Legal aspects - Legislation to deal with digital identities and information privacy are still being hashed out
- Funding - At least to get the Federation started.
- Knowledge - what/who/why/when?

'How we tried to overcome the challenges we faced'

Our approach was to:

- Following a top-down approach
- Get the CIO's of identity providers in a room together
- Have the community take ownership of the Federation moving forward

The Plan - Part 2

This was accomplished by holding a Workshop



The Plan - Part 3

With a few international speakers



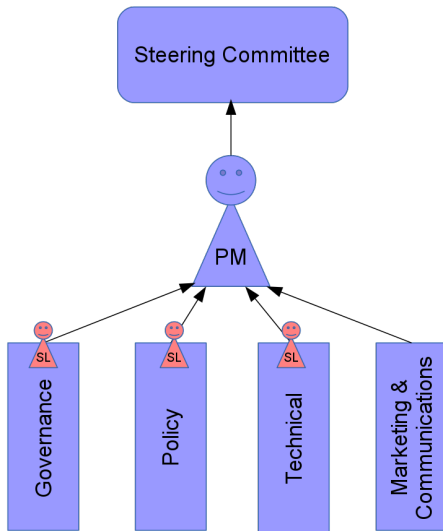
The Plan - Part 4

And lots of the participants from the community



The Outcome - The goal

'What we set out to achieve'



The Roadmap

'How are we going to get there'

Activity	Responsible Stream	Description of Activity	September		October				November				December				January					February				March				
			37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12
1	PM	Identify institutions and services that will participate in the pilot																												
2	PM	Secure resources from each participating institution																												
3	Technical	Tech Planning																												
3.1	Technical	Define specifications for the Federation																												
3.2	Technical	Identify hardware requirements																												
4	PM	Implementation Logistics																												
4.1	PM/Technical	Procure any needed equipment (Tech Planning to advice)																												
4.2	PM	Schedule time at each participating institution																												
5	Technical/PM	Pre-deployment Preparation																												
5.1	Technical	Identify back-end systems that need to talk SAML																												
5.2	Technical	Set-up IdP VMs to be deployed at institutions																												
5.3	Technical	Identify in-house (local) services to be run on the pilot federation																												
5.4	PM	Negotiate with commercial services to become part of the Federation																												
6	Technical	IdP deployment at institutions (± 2 weeks/institution)																												
6.1	Technical	Institution 1																												
6.2	Technical	Institution 2																												
6.3	Technical	Institution 3																												
6.4	Technical	Institution 4																												
7	Technical/PM	SP Deployment																												
7.1	Technical	Deploy test service/s locally (File Sender?)																												
7.2	PM/Technical	Get commercial SP to talk SAML																												
8	Technical	Test																												
9	Policy	Pilot policy																												
9.1	Policy	Define Pilot Project policy																												
9.2	PM	Get participating institutions to sign/agree to the pilot policy																												
10	Policy	Production federation Policy																												
10.1	Policy	Draft a Policy																												
10.2	Policy	Review of policy by international experts (optional)																												
10.3	Policy?	Review by Lawyers																												
10.4	Policy	Open the draft to comments by institutions																												
10.5	Policy	Incorporate relevant comments																												
11	Governance	Governance/Funding model																												
11.1	Governance	Draft the governance model																												
11.2	Governance	Open the draft to comments by institutions																												
11.3	Governance	Review of model by international experts (optional)																												
11.4	Governance	Develop a funding plan for the federation																												
11.5	Governance	Review of funding plan (?)																												
12	PM	Final proposal compilation																												

Success Factors

- Create a Pilot Federation
- Draw up a flexible policy
- Develop a governance model that can work for South Africa
- Draft a proposal that can be taken to each university for ratification.

Next Steps (after the Pilot is completed)

- Continue connecting more and more institutions to the Federation
- Potentially branch out as a stand alone entity from the NREN
- Assist other African countries to establish Federations in their own countries.
- Interfederate (eduGAIN)

Conclusion

Feel free to contact me for more information: smammen@csir.co.za

South Africa's approach might not be the best approach for all places.

Questions

Thank you

'All the world's a stage - but who are the actors?'

Identity Provider - IdP

- The organisation that provides the user credentials

Service Provider - SP

- Whoever provides the web service that you want to access

Discovery Service

- Allows you to find your home institution

Federation Agent/Operator

- An optional entity that manages the Federation

'We need to standardise our grammar!'

In the entire sphere of Federated Identity Management we have 3 or 4 protocols to choose from

- SAML 2.0
- WS-Federation
- OpenID Connect
- Information Card based identities

Practically we only have one choice: SAML 2.0. However we do have a choice of implementations of SAML 2.0 including:

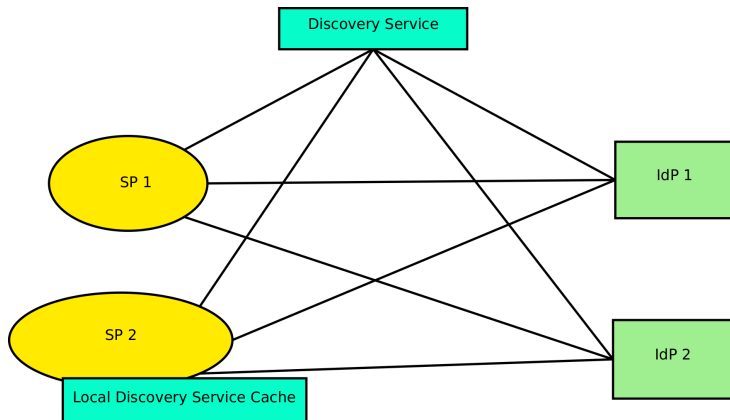
- simpleSAMLphp
- Shibboleth

'Let's make sure we are all speaking the same language'

Very Important - but I'll let the other speakers elaborate.

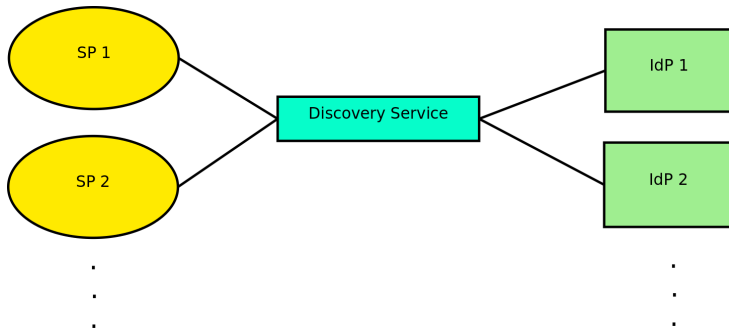
Supplementary Slides - Technology part 3.1: Mesh Architecture

'Maybe everyone should connect to everyone'



Supplementary Slides - Technology part 3.2: Hub-and-spoke architecture

'Or maybe central management is useful'



'Why should anyone go through all this effort?'

The simple answer to this question is Services. Service providers want access to verified identities. To personalise and target their products better.

Examples of services include:

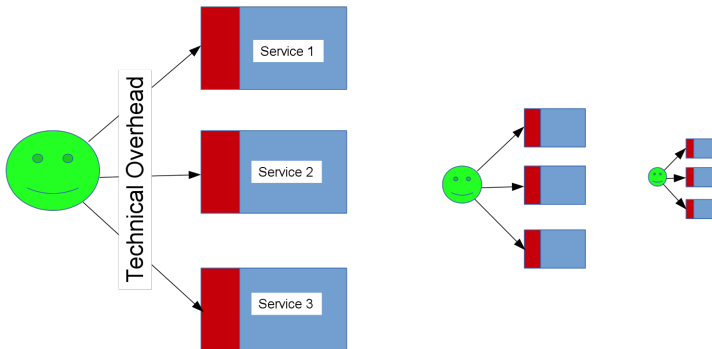
- Library services
- Grid services
- Video conferencing
- Cloud Services
- Certification Services
- Other Commercial Services

Many of you will be thinking now:

- IdPs already connect to these services individually anyway.
- What incentive is there to be part of a Federation?

Supplementary Slides - Why bother? Part 2

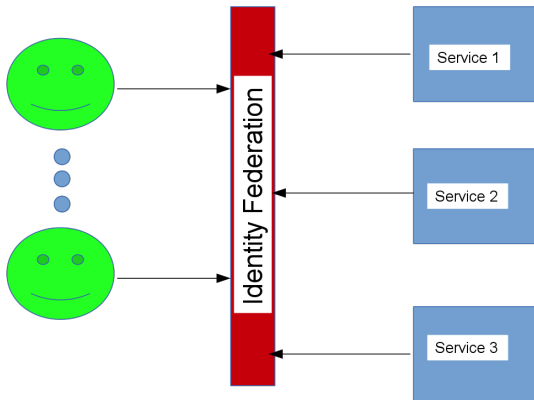
Lets expand this idea a bit



Supplementary Slides - Why bother? Part 3

So whats different in a Federation?

IdPs and SPs, in a way, share the overhead of connecting between all services that they are connected to.



The most important take home message for you:

- 1 You will need to expend the effort to connect to one another anyway. But in a federation, the effort you expend will be shared by all your services, including future ones.

'What needs to be done, and who needs to do it?'

While there is no set procedure to implement a federation, the following aspects will always have to be decided on (my opinion is provided in brackets):

- Identify the scope of the Federation (*R&E institutes and related services*)
- Choose a protocol to use within the Federation (*SAML 2.0*)
- Identify a schema or set of attributes to be used within the Federation (*eduPerson as a Starting point*)
- Decide on the architecture of the Federation (*pilot both out*)
- Define the policies of the Federation (*build on the policies of other Federations*)

Supplementary Slides - Responsibilities of the Project Manager

'Making sure that things are done right?'

Tasked with:

- Manage streams
- Report progress to the steering committee
- Draw up a proposal for taking the Federation into production

Supplementary Slides - Responsibilities of the Governance stream

The Governance stream will provide recommendations on the following:

- Business Model and Strategy
- Funding of the Federation
- Scope/Boundaries of the Federation

The Policy stream's has been tasked to:

- Draft a policy (based on our friends' policies)
- Decide on the attributes/attribute release policy needed for the Federation
- Level of assurance needed from institutions
- Decide how consent will be handled
- Define the roles and responsibilities of each member institution.
- To inter-federate or not to inter-federate?

Supplementary Slides - Responsibilities of the Technical stream

The Technical stream has been tasked to familiarise themselves with the available technologies in rolling out Federation and make recommendations on:

- Protocol for the Federation.
- Architecture for the Federation.
- Implementing a pilot of willing institutions.
- Identify potential use cases for the Federation.
- Interfederation?
- eduPerson Schema?

Supplementary Slides - Responsibilities of the Marketing and Communications stream

Very important stream that will:

- Define the Vision/Mission
- Draw up official communications with stakeholders
- Help sell the Federation at the right level

Supplementary Slides - Responsibilities of the Steering Committee

They are officially responsible for taking the Federation forward in South Africa. Specifically, they need to:

- Guide the PM and streams to move federation from a conceptual phase through a pilot phase and eventually into a production system.
- Ratify the proposal that can be submitted to member institutions regarding Federation.