You’ve got Microservices
Now Secure Them!

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Red Hat - we do fun things
Goals

• Talk a little about Microservices
• A little about centralized authentication
• See it in Action
A monolithic application puts all its functionality into a single process...

... and scales by replicating the monolith on multiple servers

A microservices architecture puts each element of functionality into a separate service...

... and scales by distributing these services across servers, replicating as needed.
Key Points

• Distributed services rather than monolith
• Best practice seems to be 1 functional area per service
• No sneaky backdoors, everything goes through APIs and Messaging Services
• No specific technology required!
Some Architectural Patterns
What you used to do

- A monolith where all authentication used to happen.
- Maybe a distributed cache to handle session state
The new fancy way

• You have an authentication service just like all the other services.

• It should be distributed and fault tolerant

• It should be able to scale independently

• It should have a standard way to interact
So how do I get my hands on this hotness

- Stormpath
- Auth0
- We are going to show an installable FOSS project from Red Hat called Keycloak
Open Source
Identity and Access Management
by Red Hat
Authentication

- Keycloak deals with authentication
- Safely store passwords
- Two factor authentication
- Customizable flows
- Single Sign On
Protocols

- OpenID Connect
- SAML v2
- Kerberos SSO Bridge
Clustering

- Scalability
- High availability
- Based on Infinispan caches
Admin Console
Account Management

Edit Account

- Username: stianst
- Email: stian@redhat.com
- First name: Stian
- Last name: Thorgersen

Buttons: Cancel, Save
Client Adapters

- Easy to use client libraries
- JavaEE, Spring, JavaScript, NodeJS and mobile
- More to come
- Can also use
  - OpenID Connect Resource Provider libraries
  - SAML v2 Service Provider libraries
Service Provider Interfaces (SPIs)

- Keycloak aims to be an out of the box solution
- But! Some people have custom requirements
- That’s why we have SPIs
  - User Store
  - User Federation
  - Authentication
  - Required Actions
  - And many more, even pluggable protocols
Themes
Identity Brokering

- OpenID
- SAML
- Keycloak
- GitHub
- Facebook
- Google
- Twitter
User Federation

LDAP

ACTIVE DIRECTORY

RDBMS

keycloak
Demo Time!

• Take some microservices with different patterns
• Show how easily we added Keycloak
• Show the magic we can now do
• PROFIT!!!
Take Aways

• Microservices architecture brings some interesting application capabilities

• It also adds some interesting challenges – authentication being a BIG one

• Make your authentication just another service

• Products/projects like Keycloak, Stormpath, and Auth0 can make it easy to bring the authentication love