

# Fuse Fabric

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  - blog: <http://macstrac.blogspot.com/>
- Software Fellow at FuseSource
- long term Open Source contributor
  - created the Groovy programming language
  - co-founder of
    - Apache ActiveMQ, Camel, ServiceMix, Fabric
    - Scalate

# Agenda : Fuse Fabric

- why Fuse Fabric?
- what does Fabric do?
- how does Fabric work?
- high level architecture
- features
- demo

# Why Fuse Fabric?

- installing, configuring, running integration applications is hard
- we want to make it easy!

# What is Fuse Fabric?

- <http://fabric.fusesource.org/>
- open source software for configuring, provisioning & running Fuse and Apache software on any machines
  - physical, virtual, private, public, private+public cloud or not etc
- keeps you DRY from those rainy clouds :)
- weave your containers into an easy to manage fabric

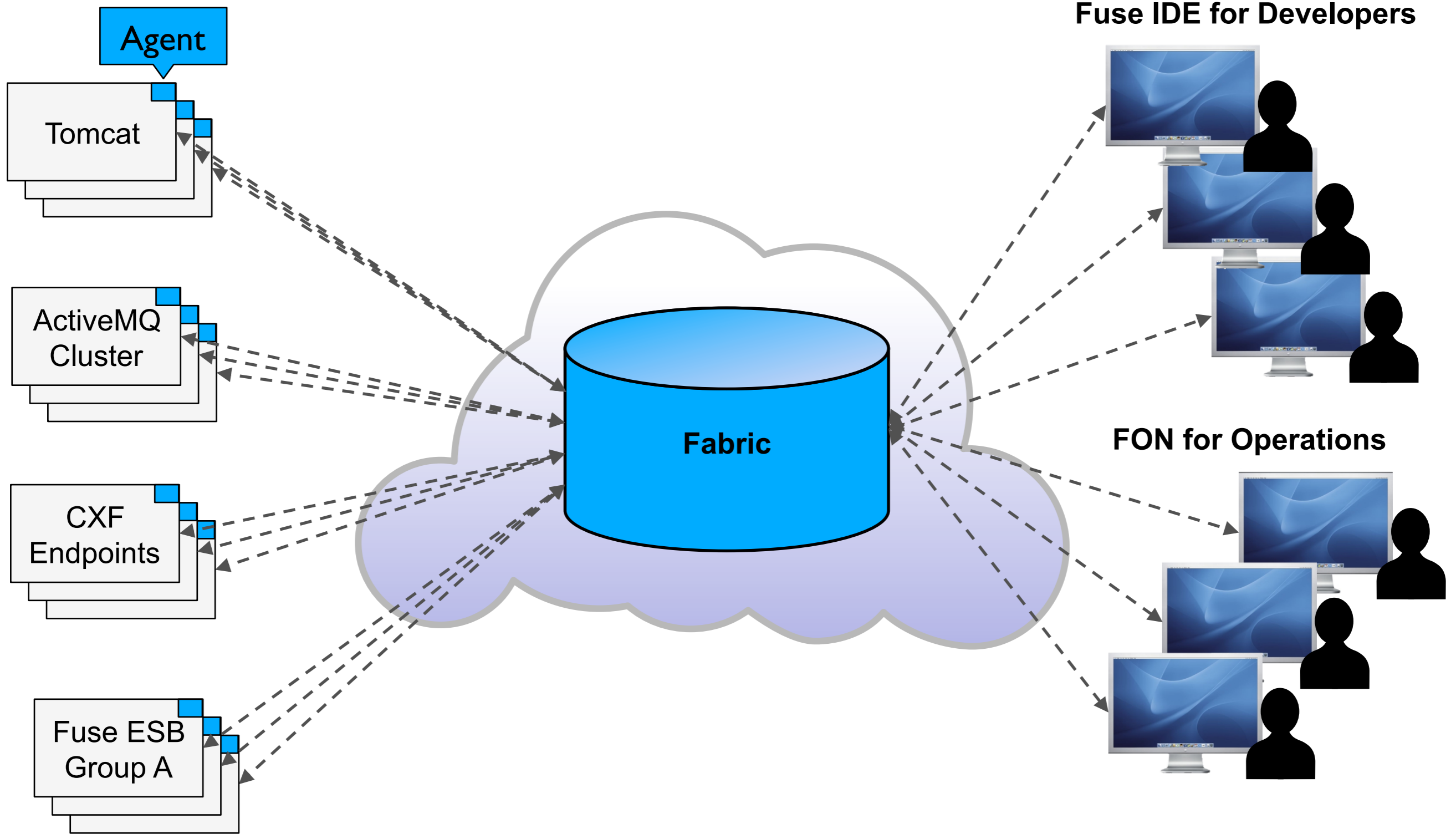
# Fuse Fabric: What does it do?

- distributed configuration
- discovery of services, endpoints and message brokers
- load balancing and failover
- provisioning of features across machines
- easy elastic scaling of services

# What is Fabric?

- Registry
- Agents
- Profiles

# Fabric overview





# Registry

- Based on Apache ZooKeeper
  - provides replicated HA support
  - uses quorum to protect against network splits
- Uses a directory & file based abstraction for looking at entries
- Provides a very efficient mechanism for agents to watch a relevant part of the registry tree for changes
- Provides all the needed abstractions for distributed control, lock management & partitioning
  - consistent hashing & sorting
  - ephemeral nodes

# Agent

- fabric-agent feature deployed per Karaf/ServiceMix container
- agent listens to the registry
  - configures & provisions features & services
- agent registers important information into the registry
  - its location, how to manage it via JMX etc
- agent can control child Karaf containers or child processes
- other kinds of container agents in the pipeline

# Profiles

- Allow for easy group configuration & control
  - like using Access Control Lists for security or LDAP trees
- An agent is started with one or more profiles associated with it
- You can then easily control a group of processes
- Profiles support multiple inheritance to simplify configuration work & expressive power
- Profiles are versioned for easy rolling update / rollback

# Profiles

- Registry entries for a given agent:
  - /fabric/configs/agents/{agent}
  - /fabric/configs/versions/{version}/agents/{agent}
  - /fabric/configs/versions/{version}/profiles/{profile}
- So we can change an agents profile and/or version on the fly

# Core Fabric

- Configuration
  - distributed OSGi Config Admin / blueprint / spring properties
- Provisioning
  - start/stop features/bundles in agents based on their configuration

# ActiveMQ Fabric

- message brokers automatically discovery each other
- clients use connection URI “fabric:default” to connect to a message broker
- if you have multiple logical ActiveMQ clusters just name them in the URI e.g.
  - fabric:us-west
  - fabric:us-east
  - fabric:europa
- Extensions to ActiveMQ Apollo...
  - each queue or topic can be owned by a specific broker (or broker cluster) to distribute the work across many brokers
  - shard a queue across multiple brokers to provide linear scalability

# Camel Fabric

## ■ Exposing a Camel endpoint into the fabric

- `from("fabric:myName:jetty:http://0.0.0.0:8181").to("bean:foo")`

## ■ Invoking a remote Camel endpoint

- `from("seda:foo").to("fabric:myName")`

# Other Fabrics

- CXF Fabric
  - adds a feature to the CXF bus for discovery & load balancing
- D-OSGi Fabric
  - populates the OSGi registry with client proxies to remote OSGi services
- ServiceMix Fabric
  - allow local NMR to use remote endpoints when no local NMR endpoint available
- Process Fabric
  - start & monitor processes
  - keep processes running across machines



# Fabric Tools

- Karaf shells
- Fuse IDE
- Fuse Operational Network

# Demo time!



# Any Questions?



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