Navajo 3

New features

Generic Resources

Like SQLMap, but for any kind of resources.

Examples:

- JDBC (SQL) resources
- MongoDB resources
- HTTP services
- Navajo servers
- (S)FTP servers
- Mail servers

Multi tenant

One code base for multiple tenants

- Different datasources*
- Different globals*
- Tenant specific scripts*

* if you want

Multi deployment

- One code base for multiple deployments (test, production, etc)
- Deployment is set at startup
- Different data sources
- Different globals
- Allows identical source for different deployments

Using resources in a script

- Address resource by name
- The actual resource will be resolved based on deployment and tenant

OSGi

- Everything is a service
- Navajo compiles scripts to bundles

  … which expose one service each
- But you can expose a compatible service in any way you like
- Real time updates of nearly anything

Entities

- Declarative REST mapping for scripts
- https://github.com/Dexels/navajo/wiki/Navajo-entities-or-REST-comes-to-Navajo

Docker containers

- Isolated runtime environment
- Like a process, but with its own filesystem and network interface
- Contains basic infrastructure code
- Point to a Git repository and stay up to date
- Configured using environment variables

  … or bake a complete image

Docker Containers (2)

- We can also build a completely self contained container
- Would require a restart for every change
- … but easier to deploy (esp. in restricted environments)

Git(Hub) Integration

- Point to Git repository
- Pull periodically or register web hook
- Feature branch for every feature
- Deployment branch for every deployment (test, prod, etc)
- Merge feature branch into deployment to deploy

Elastic ‘ELK’ Stack

- ElasticSearch

  Indexed document store

- Log stash

  Moves data from various inputs to ElasticSearch

- Kibana

  Web UI for ElasticSearch

Navajo + Elastic stack

- Navajo uses SLF4j API
- MDC variables give extra context to log statements
- Navajo Redis appender stores logs into Redis
- Redis: Key value store that runs on every host
- Logstash runs on every host and moves data to elastic search
- Redis protects servers from ElasticSearch performance issues or network connectivity problems

Clustering

- Remove all single point of failures
- Navajo cluster uses Hazelcast for realtime sharing
- MongoDB for persistent shared store
- Status servlet reports if server is ready
- Load balancer checks status servlet (HAProxy)

Database Triggers

- Oracle
- MongoDB (alpha)

Monitoring

- Rackermon

Configuration management

- We use SaltStack
- Basic server configuration (users, packages)
- Declarative model of servers and containers
- Generate service files (upstart / systemd)
- Generate load balancing configuration

Future work

Non blocking scripts

- Uses less threads
- Uses less memory
- In progress

Scala based scripts

- Generic ‘language plugin’
- Pluggable compiler

Persisted Queues

- Using Apache Kafka
- Auditing
- Replication

Kubernetes cluster

- Next-Gen Docker cluster
- Real time monitoring and resolution