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Effectively manage and monitor JBoss Enterprise Data Grids with JBoss Operations Network

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Red Hat
06.28.12

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- R&D Engineer, Red Hat Inc.
- Infinispan developer
- 5+ years exp. with distributed data systems
- Twitter: @galderz

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Heiko W.Rupp

- Principal software engineer
- 6 years with Red Hat
- JBoss Operations Network and RHQ team
- Twitter: @pilhuhn

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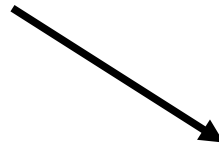
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Infinispan versus JBoss Data Grid

- Productized, supportable
- Stable, well-documented, far higher quality
- Certified to work with hardware and software from various vendors

Infinispan



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DATA GRID**

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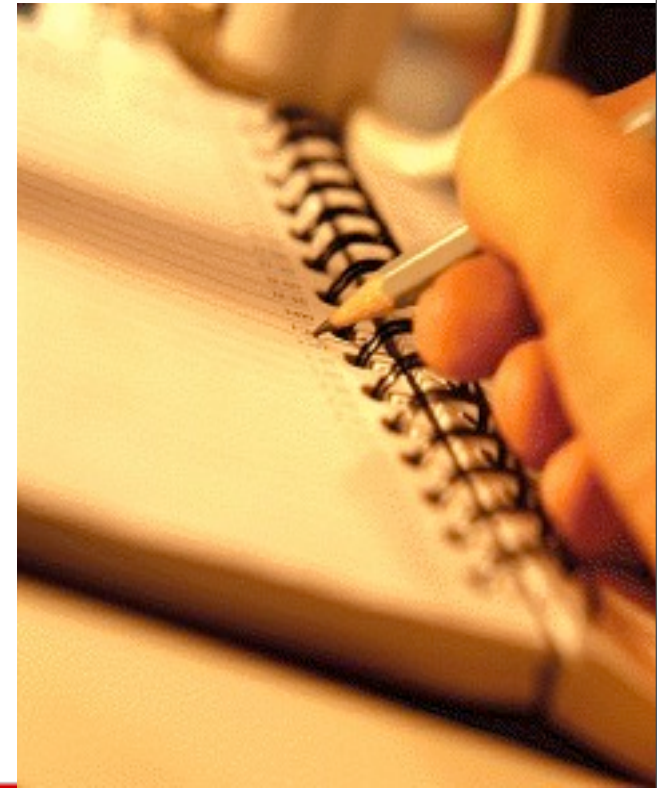
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Agenda

- Data grids as a solution to scalability problems
- Introduction to JBoss Data Grid
- Introduction to JBoss Operations Network
- Demo!



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The Challenge of **scale**

- 1) Attempt to scale your database
- 2) Start over
- 3) Deploy smarter technology

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The Challenge of **scale**

1) Attempt to scale your database

- Bigger hardware, more hardware, etc
- Expensive and may not work
- Scaling vertically may not even work this time

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The Challenge of **scale**

2) Start Over

- Sharding, break up app, go stateless
- May take more time than you have
- Costly to rearchitect / redevelop
- Difficult to maintain

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The Challenge of **scale**

3) Deploy smarter technology

- Distributed Cache, Data Grids
- Quick implementation to front your database
- Elastic demand based scaling
- Highly distributed and fault tolerant

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Usage of Data Grids

- Delivery of real time routing, tracking and logistics information
- Provide rapid access to content for millions of users
- Reduce RDBMS usage by brokering between apps and back ends
 - Pacemaker to the RDBMS
- Enable low latency transactional applications

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JBoss Data Grid (JDG)

- A **distributed, in memory NoSQL data store** that provides transactional data management or caching services for high-performance workloads.
- **Elastic and Highly-available** – scale up and down on demand, automatic failover, optionally store to and load from disk or RDBMS (write through and write behind)

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JDG manageable by JBoss Operations Network

- <http://www.jboss.com/products/jbosson>
- Framework for
 - Monitoring, Alerting, Management of servers and applications
- Upstream project is RHQ

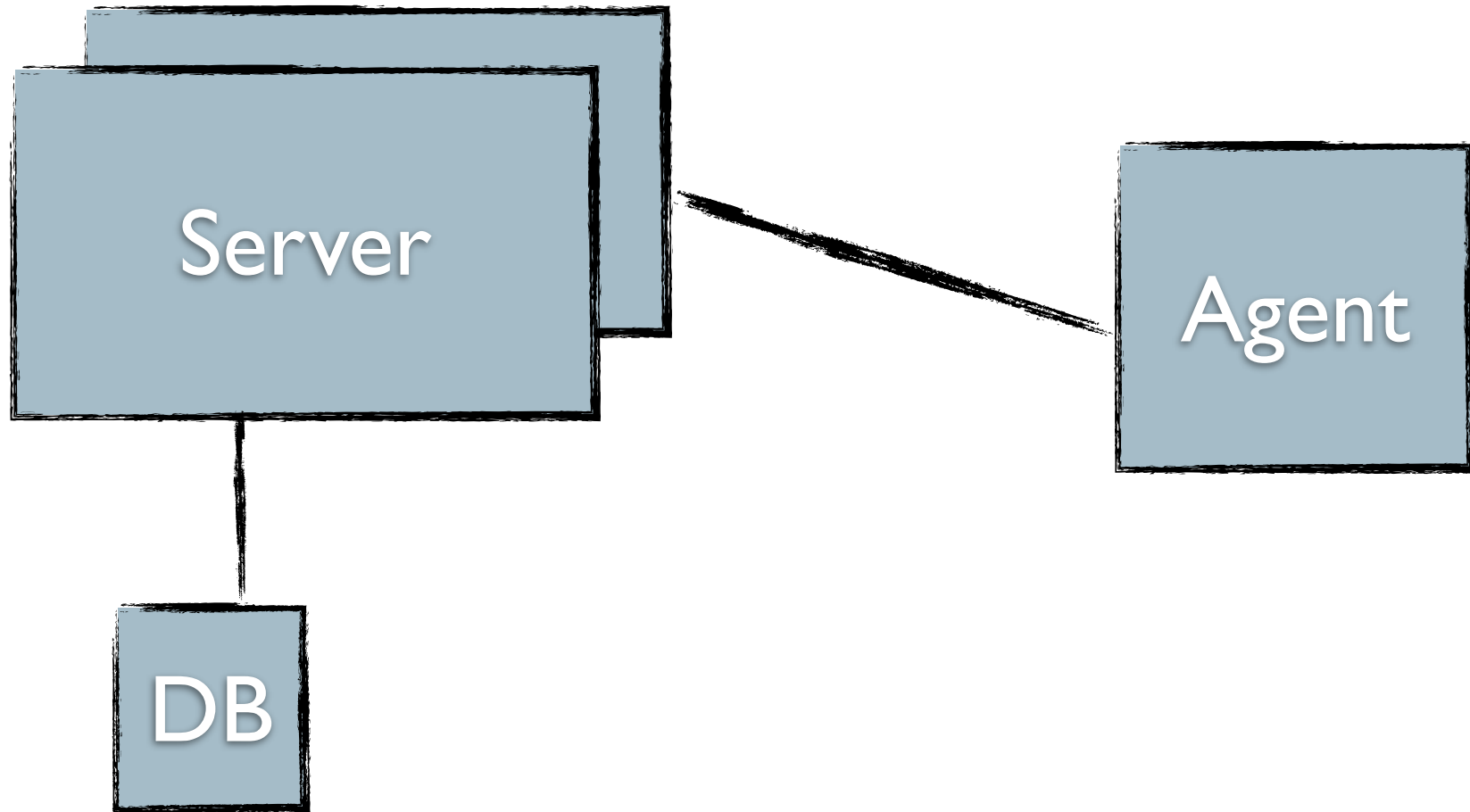
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JBoss Operations Network architecture



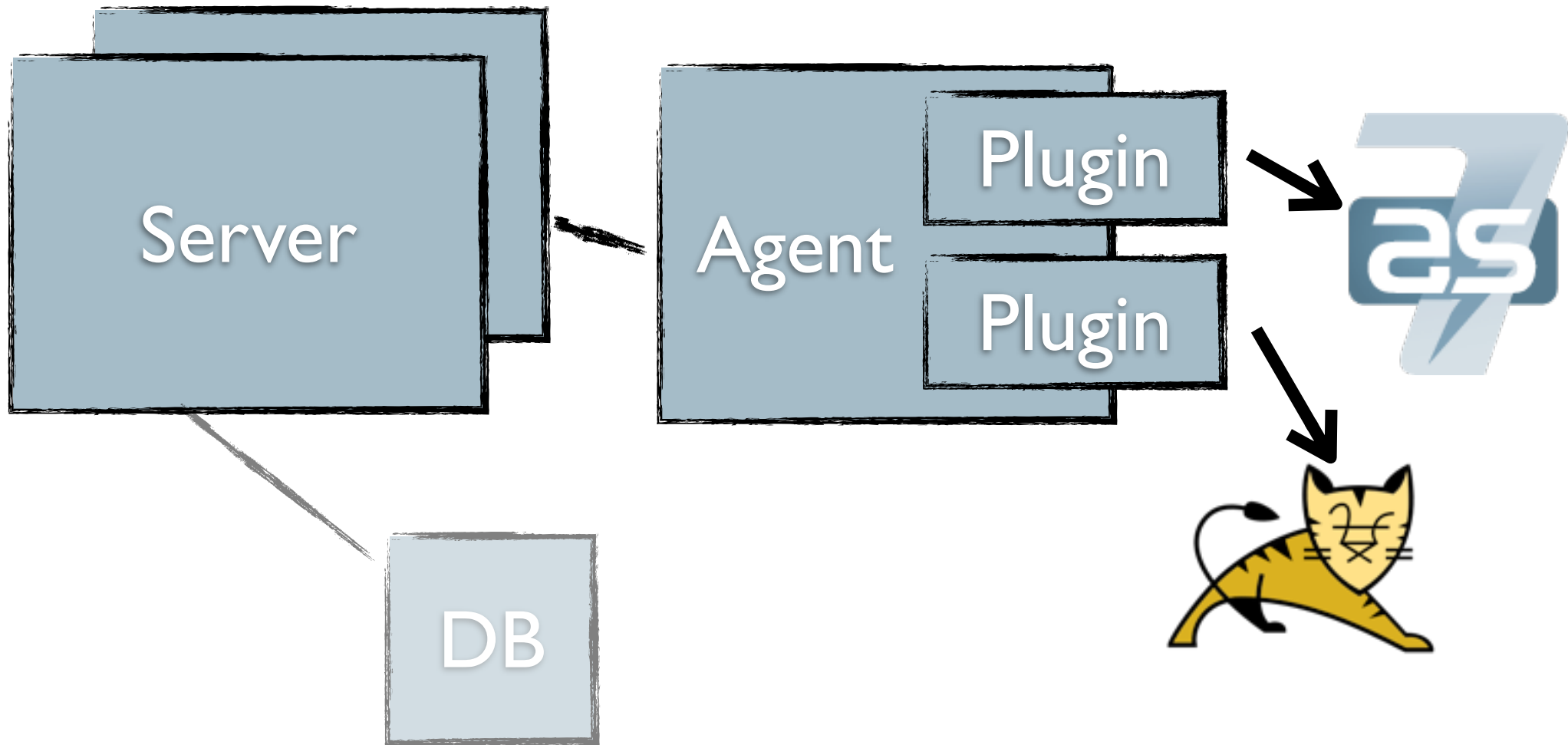
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JBoss Operations Network architecture



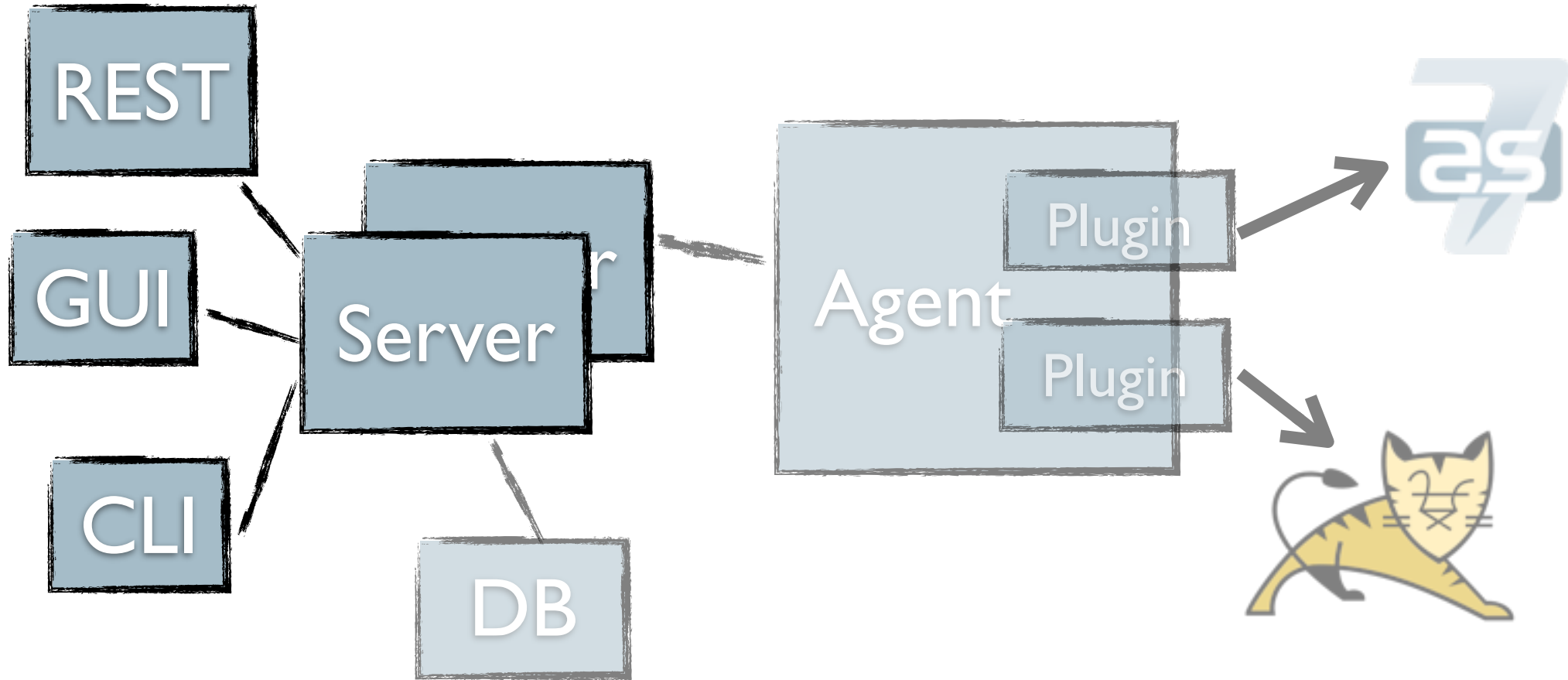
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JBoss Operations Network architecture



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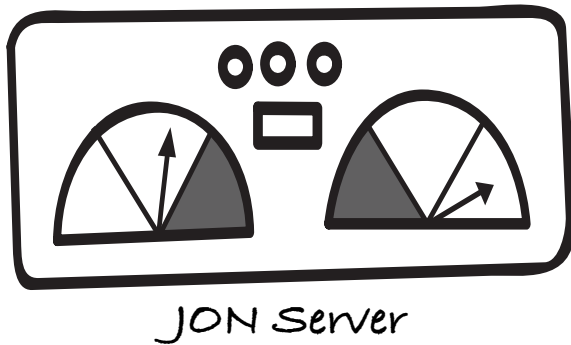
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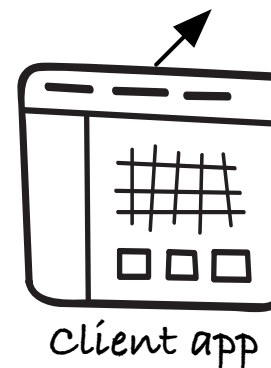
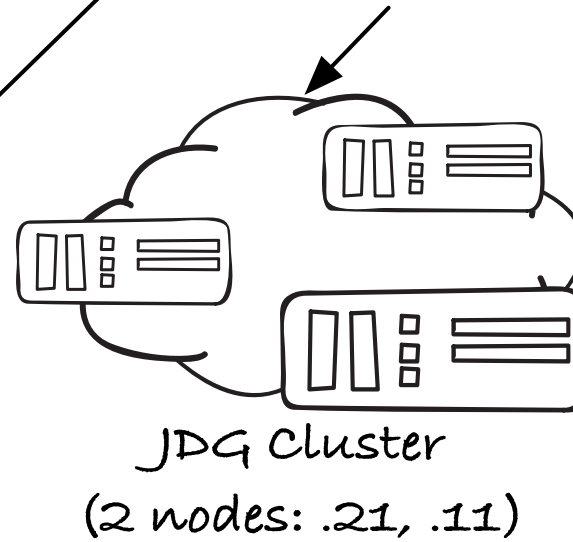
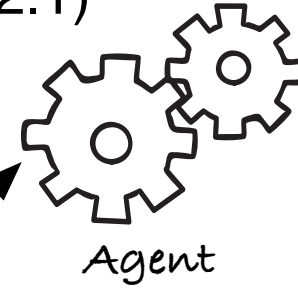


Demo setup

Heiko's laptop
(192.168.2.8)



Galder's laptop
(192.168.2.1)



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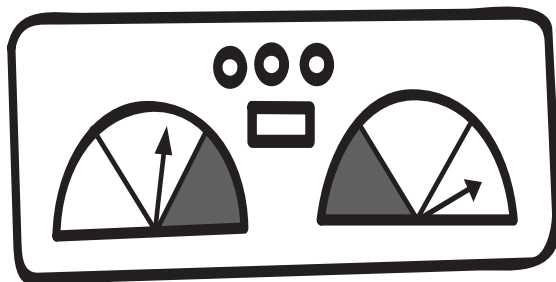
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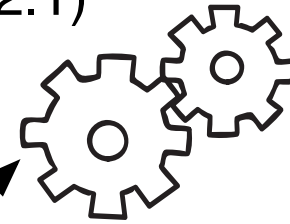
Demo setup

Heiko's laptop
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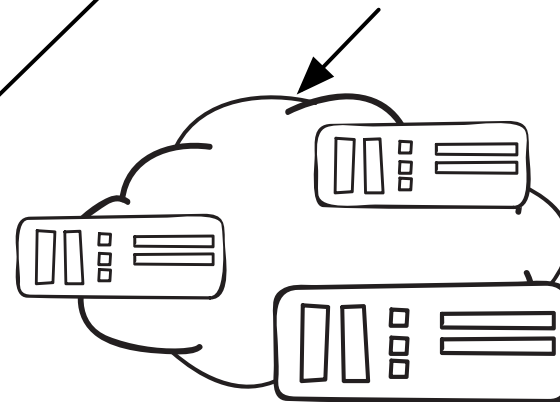


JON Server

Galder's laptop
(192.168.2.1)

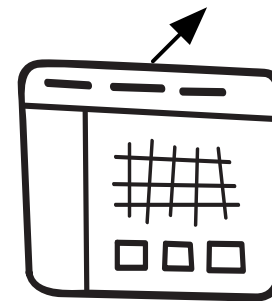


Agent



JDG Cluster

(3 nodes: .21, .11, .1)



Client app

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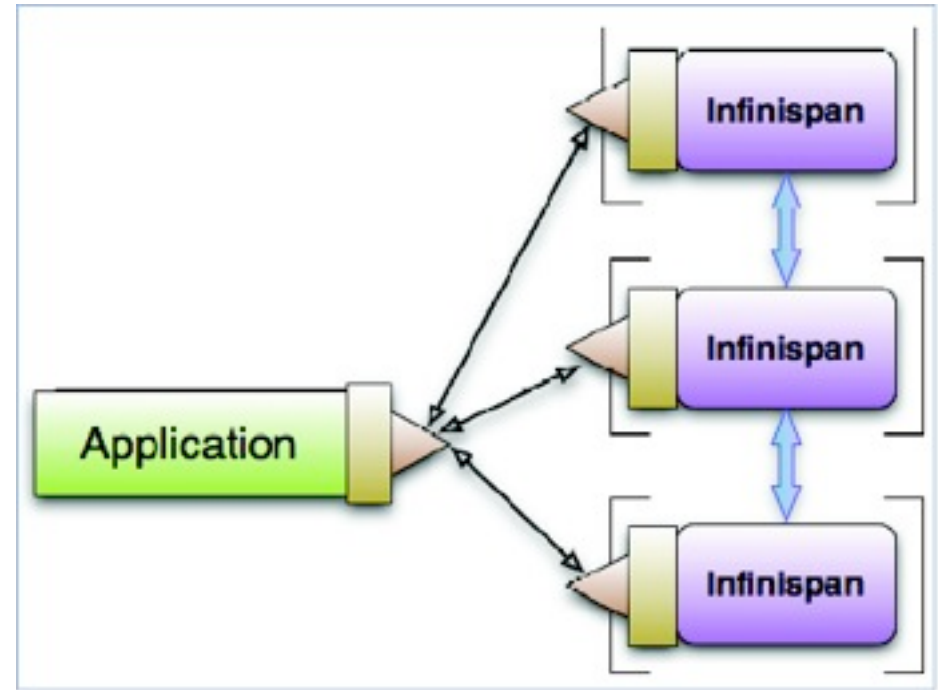
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Using JDG as Grid Server

- Allows independently controlled and managed tier of data grid nodes
- Connect over a socket – just like a database
- Can be shared by several applications



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REST-API in JBoss Operations Network

- “Manage your enterprise with curl”
 - REST
 - Push and Pull data to and from the server
 - Tech preview in JBossON 3.1
- More in “New & More Effective Management for JBoss Enterprise Middleware”
 - Room 302 at 4:50

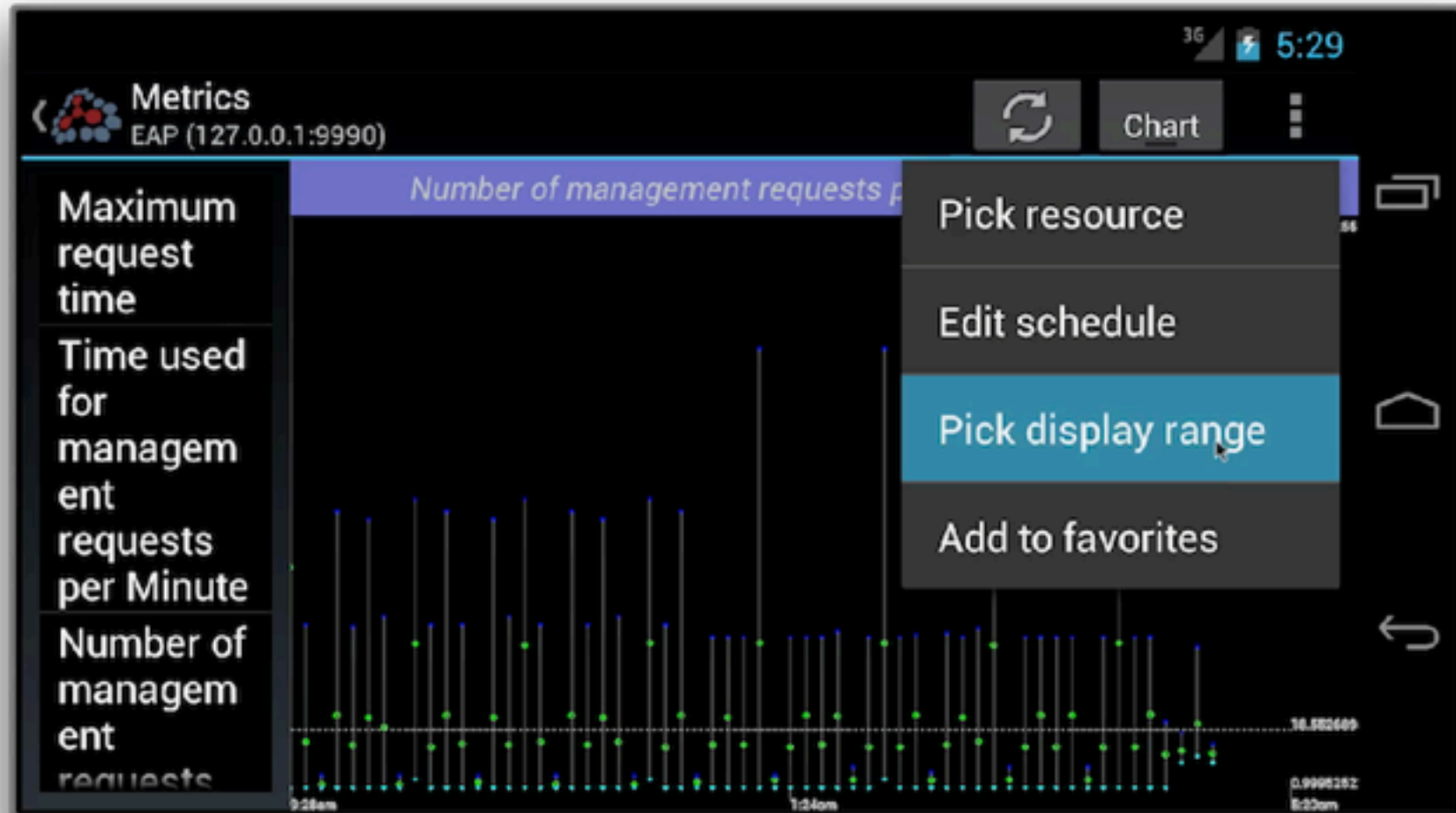
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Metrics with Android (REST)



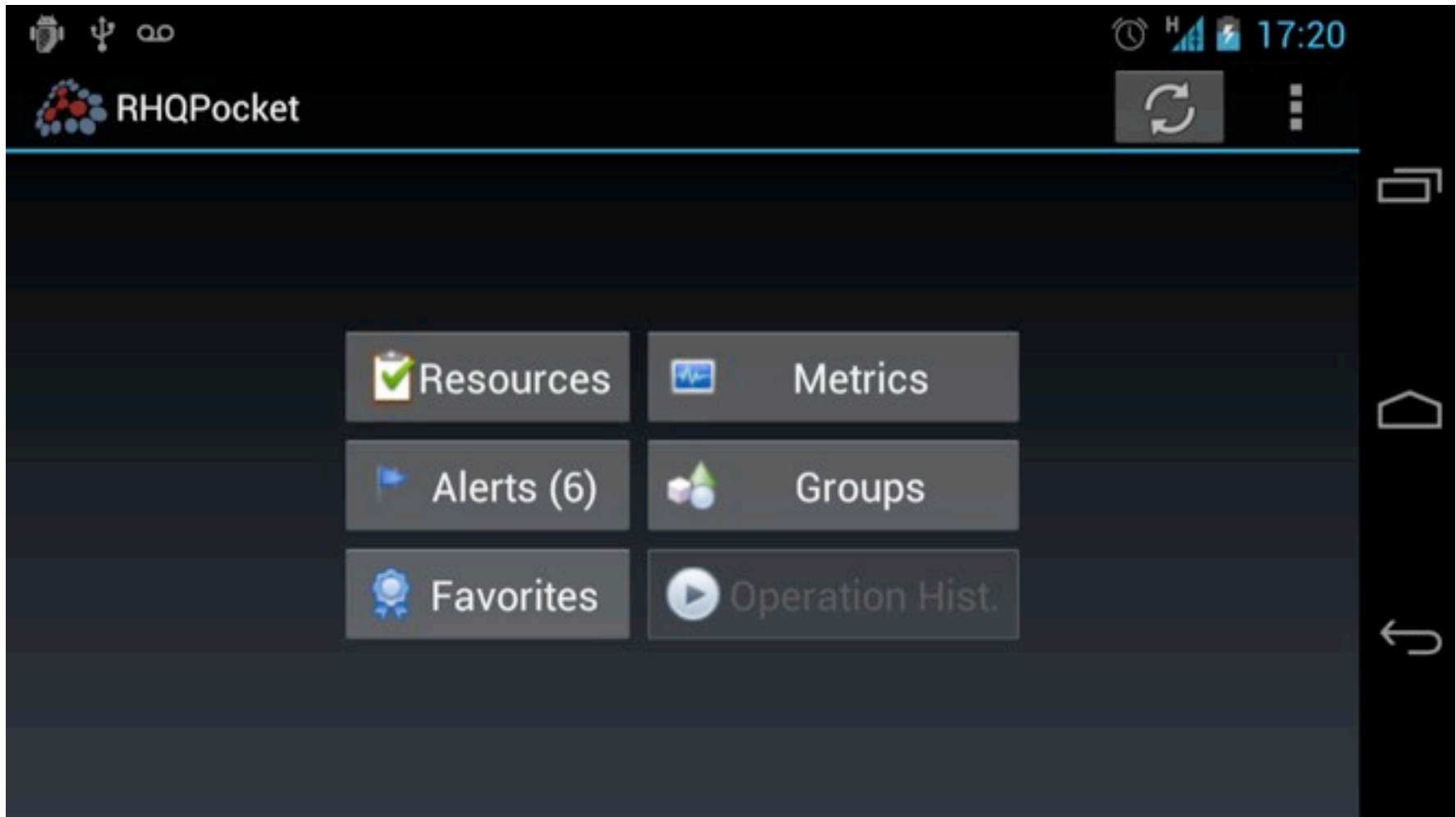
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Metrics with Android (REST)



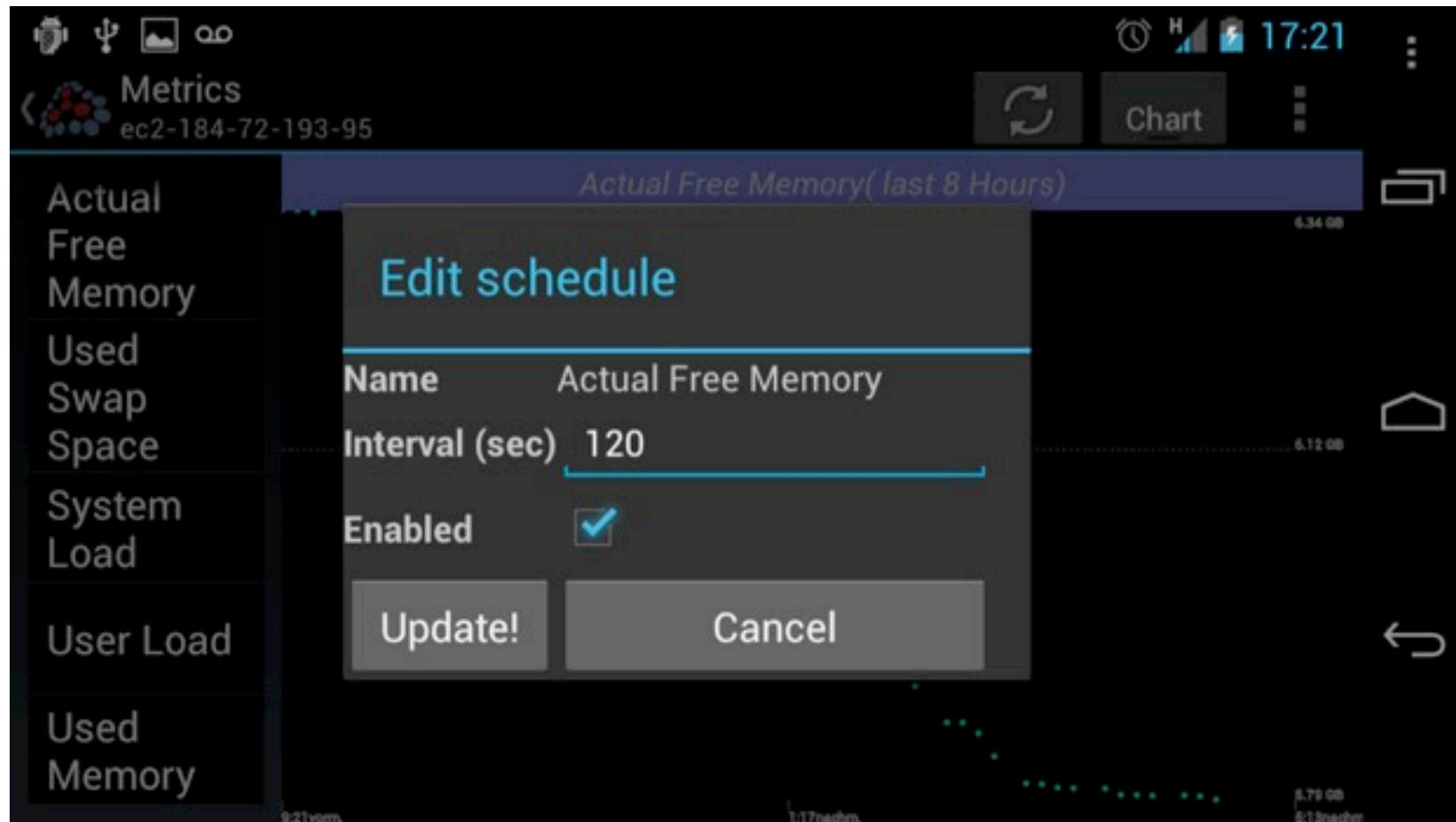
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Metrics with Android (REST)



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Summary

- JBoss Data Grid offers elastic, in-memory storage
- JDG offers transparent dynamic topology support
- JBoss Operations Network can be used to manage and monitor JDG instances
- Alerts and Operations allow for powerful automation

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