

# Developing Cloud Applications with Eclipse Gyrex

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# Topics

- **LEARN** what modern server applications need to feature
- **UNDERSTAND** the usage of selected EclipseRT technologies
- **BUILD** an EclipseRT server application based on Equinox and Eclipse Gyrex
- **SETUP** a private cluster

# Modern Server Applications

- **High traffic**

Million transactions  
per hour



- **Different frontend technologies and devices**



- **Modular** in development and deployment



- **Easy** to setup and run

- **Open** for new technologies
  - e.g. persistence

# Eclipse Gyrex

A lightweight **application stack** for building server applications using **EclipseRT** technologies.

GYREX

# EclipseRT (RT = Runtime)

“EclipseRT is the collection of OSGi-based runtimes and frameworks built by the Eclipse open source projects. ”

Containers, Middleware, EnterpriseFrameworks

eclipse)link

*jetty://*

equinox  
OSGI



GYREX

eclipseRT

# Equinox

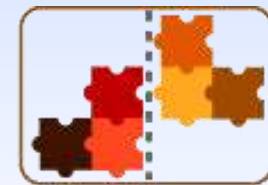
- **OSGi** reference implementation
- Foundation of EclipseRT
- **C**omponent **O**riented **D**evelopment and **A**ssembly



*Create*



*Extend*



*Assemble*

# Jetty

- Asynchronous HTTP Server and Client
- Standards based Servlet Container
- Web Sockets server
- OSGi, JNDI, JMX, JASPI, AJP support
  
- Small foot print
- Excellent scalability
  
- Runs in
  - Apache Hadoop
  - Google AppEngine



# EclipseLink

Comprehensive Java persistence solution  
addressing relational, XML, and database web services.



  
Databases

  
XML Data

  
Legacy Systems



# Gyrex

- built-in **clustering**
- built-in **web-based administration UI**
- built-in **multi tenancy**
- enhancements for **professional maintenance**
  - centralized logging
  - cluster provisioning UI

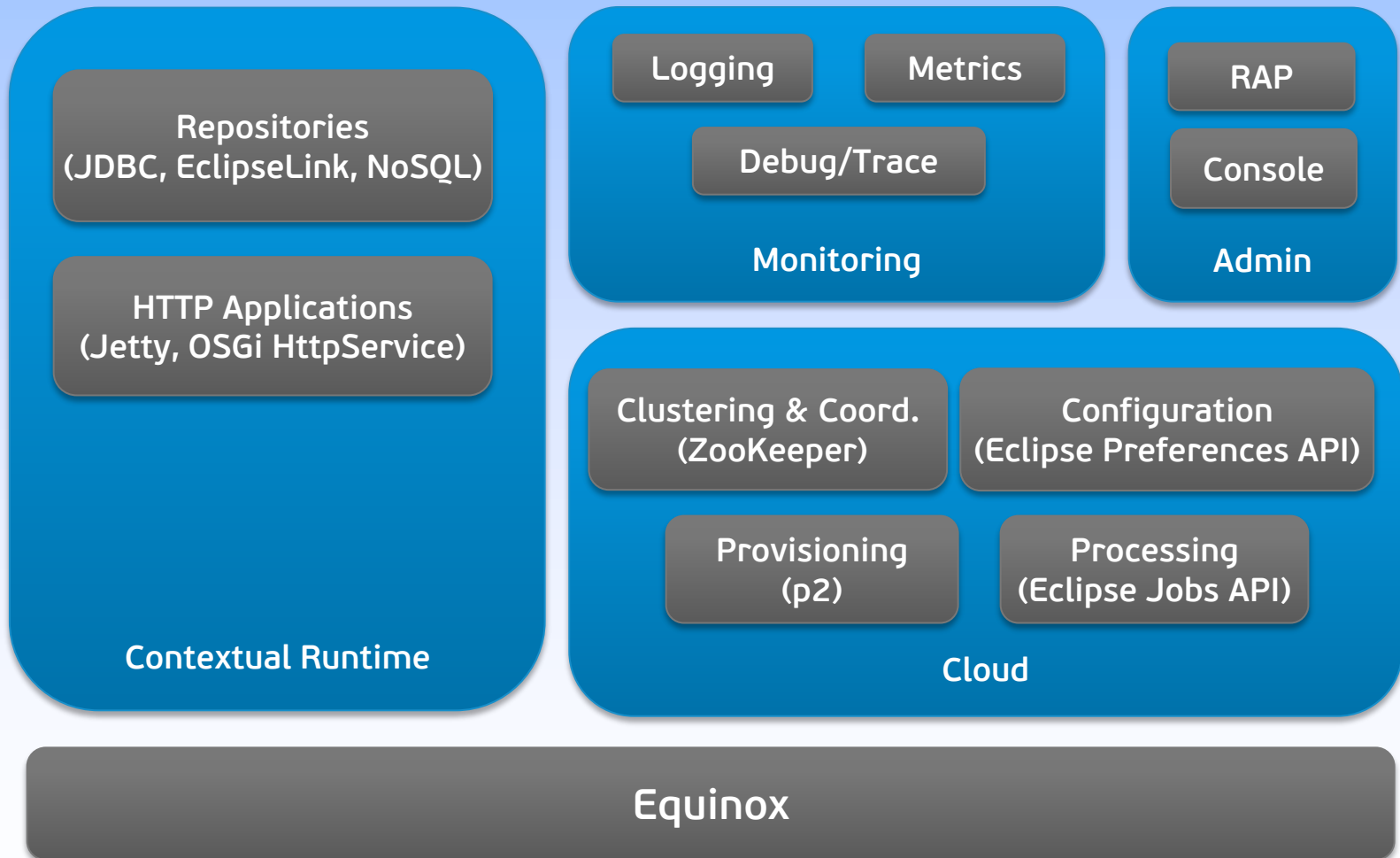
GYREX

# Gyrex Features

- lightweight **application stack**
- fast **100% OSGi** runtime
- central **cluster** configuration through Apache ZooKeeper
- cluster aware **job scheduling**
- **automated deployment** through p2
- support for cluster **node roles**, e.g. “job worker node” and “api node”



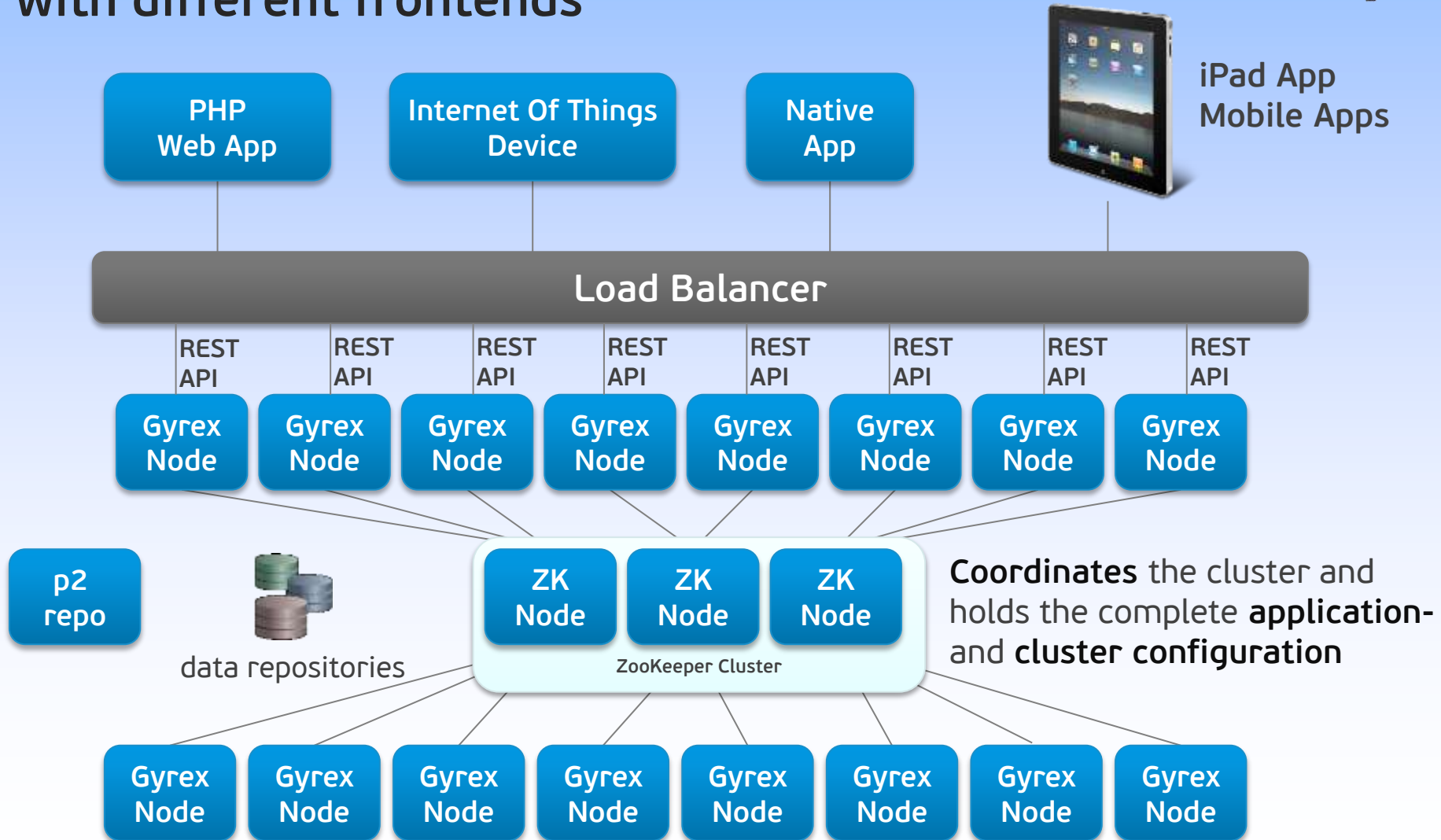
# Gyrex Components



# Gyrex Infrastructure Setup

For a high traffic application with different frontends

GYREX



# Outlook

- 1.2 (March 2013)
  - Migrate remaining and introduce new administration capabilities to new Admin UI (migration complete)
  - Full JAX-RS support (done)
  - Rework of job history to have more flexible storage options (scoped)
  - Equinox DS improvements (planned)
- Future items
  - OSGi Standards
  - Tomcat integration

# Q&A

- Gyrex Newsgroup / Forum at <http://www.eclipse.org/forums/>
- Information hub at <http://www.eclipse.org/gyrex/>
- Session feedback / questions  
[gunnar@eclipse.org](mailto:gunnar@eclipse.org)  
[@guw](mailto:@guw)



**Thank You!**