Provisioning and managing embedded systems

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Eclipse as you now it
Eclipse is

- a Java IDE
- modular
- extensible
- a platform for tools
- a platform for modeling
- and more things you probably don’t care about
Trends in Eclipse

- Eclipse proves the power of componentization
- Componentization naturally spreads
- More components $\rightarrow$ more management
- Management is hard
Model your world
Ganymede is now Galileo
We don‘t say model any more
DSL
Digital subscriber line?
For 2009, a new category of projects has coalesced under the name “Eclipse Runtime Technology”. This includes Equinox (Eclipse’s implementation of the OSGi standard), the Eclipse Communication Framework, Rich Ajax Platform Riena (modular business application platform), Swordfish (SOA framework) and EclipseLink (persistence services).

Another major focus of the 2009 release is modeling tools. New innovation in Galileo include Xtext (for creation of domain specific languages) and Connected Data Objects (distributed shared models with transactions).

“The release train continues to be a great achievement of the Eclipse community,” explained Mike Milinkovich, Executive Director of the Eclipse Foundation. “Galileo demonstrates that large distributed software development can be done on a predictable schedule. This predictability makes it possible for our user and adopter community to quickly adopt new releases from Eclipse.”
Domain specific language
You language designers
get ready
It's simple
But - isn‘t this talk about provisioning?
Tool models have to match project models
Tools DSLs need to match project DSLs
Manage tools
Even worse
Manage the combination of tools (versions) and projects (versions)
This is all about provisioning
p2 is not an Eclipse update mechanism
This is probably a small problem for you
Decouple software from hardware
Modularize software
Manage software and configurations for devices
Software is mostly viewed as a burden in embedded

but like it or not it is going to be one of the most important competitive differentiators in the near future

by Karstenknuth at de.wikipedia
Focus
A platform for provisioning
Eclipse is

• A Java IDE
• ...
• A platform for provisioning
Provisioning today
Status
OpenOffice.org 3.1.0 is available.

The installed version is OpenOffice.org 3.0.1.

Note: Before downloading an update, please ensure that you have sufficient access rights to install it. A password, usually the administrator's or root password, may be required.

Description
The download location is: /Users/jkrause/Desktop.

Under Tools – Options... – OpenOffice.org – Online Update you can change the download location.
Update Available

An update for Firefox is available:

**Firefox 3.0.11**

It is strongly recommended that you upgrade Firefox as soon as possible.

[View more information about this update]

[Download & Install Now »]

Platform style
Für Ihren Computer ist neue Software verfügbar.

Das Installieren dieser Software kann einige Zeit in Anspruch nehmen. Falls Sie die Software nicht jetzt installieren möchten, können Sie im Apple-Menü die Option „Softwareaktualisierung“ auswählen.

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Online
What are your options?
Ignore it
Fail
Face the challenge

you need a platform
Replace is not update
Good advise - after the fact

Dienstag, 30. Juni 2009
Some people get it right
Demo
Remote Provisioning with p2 and EclipseSource

Jeff McAffer
Equinox & RT co-lead
EclipseSource CTO
p2 does NOT mean running Java(tm) on the client
but it comes in handy on the server
p2 Architecture

Metadata

Artifacts

Runtimes

Profiles

Director

Repositories

Touchpoints

Engine

Android

Device

OS

Headunit simple

Headunit deluxe

Dienstag, 30. Juni 2009
Defining contracts

Provided Capabilities

Properties

IU
(id, ver)

Required Capabilities

Artifacts

Actions

Dienstag, 30. Juni 2009
p2 in Action

Metadata fetched and constraints analyzed

Provisioning operation requested

IU install, uninstall, update operations

IUs configured into runtimes

Artifact availability and mirroring

Profile updated

Done

Data transfer

Http/Https

File system

Volume

Dienstag, 30. Juni 2009
Satisfiability is the problem of determining if the variables of a given Boolean formula can be assigned in such a way as to make the formula evaluate to TRUE.
SAT-based resolution

• The installation problem is NP-complete
• Map dependencies to boolean formula
• Use SAT4J
  • If there is no solution it will tell us
  • If there is a solution we will get an optimal one
Optimizing and Processing Artifacts

Repository

Pack200 Optimizer

Canonical

Pack200 JBDiff

Artifact Repository

Pack200 Processor

Dienstag, 30. Juni 2009
p2 is a platform
Thank you