Pull Deployment of Services

Sander van der Burg, Eelco Dolstra, Eelco Visser

Delft University of Technology, EEMCS,
Department of Software Technology

Philips Healthcare, Philips Informatics Infrastructure (PII),
Best

November 24, 2010
Hospital environments

Various services are used to assist medical staff
Hospital environments

Services are bound to dedicated devices
Device-orientation has undesirable implications:
Device-orientation has undesirable implications:

- *Overcapacity* and *suboptimal* usage.
- *Inflexibility* in reacting to events.
- *Deployment* of services is a complicated and time-consuming process.
We want to use services on any device any place, i.e. \textit{pull deployment of services}.
Service-orientation

User -> Workstation -> Medical data

User -> Mobile phone -> Datacenter

User -> Web browser -> Web Application Server
Architecture

Application

Service

Infrastructure

NixOS

Windows

Sander van der Burg, Eelco Dolstra, Eelco Visser

Pull Deployment of Services
Architecture

Application
- Data model
- Processes model
- Presentation model

Service

Infrastructure
- NixOS
- Windows
- X

Sander van der Burg, Eelco Dolstra, Eelco Visser

Pull Deployment of Services
A tool for service deployment
Takes models of the system and infrastructure as input
Automatically and reliably installs or upgrades a distributed system in a network of machines
Distributed NixOS

- Models of networks of NixOS machines
- Automated deployment of a network of machines
- Testing of distributed systems with complex environmental dependencies
- Cloud deployment (e.g. Amazon EC2)
With a PDS architecture distributable services can be developed in a more flexible manner and deployed automatically.

Techniques can be used in any domain using service-oriented systems:
- e.g. CRM systems
- Web services
- Web applications

Software available under free/open-source licenses:
http://nixos.org
Future work

- Cope with dynamism of infrastructure
- Implement service testing
- Investigate service design issues