Domain: Architecture

Service Creation with MetaEdit+

A telecommunications solution

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History

Version	date	Editor	Status	Desciption
1	May 4	Ahul	Draft	Initial
2	May 4	Ahul	Draft	Feedback Ric Herminez
3	May 18	Ahul	Final	Feedback Juha-Pekka Tolvanen

Overview

- **Company**
- Problem domain
- Solution concept
- The roll of DSM
- A sample
- Status and future outlook
- Questions

The ICT Group

ICT Automatisering N.V.

• Founded:	1978
• Turnover 2006:	€ 80.7 million
• Net profit 2006:	€ 6.2 million
• Number of employees:	± 800
• Number of development centres:	7
• Project realisation at:	CMM level 3

Deventer

Eindhoven

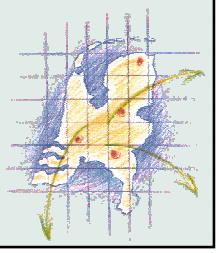
Barendrecht

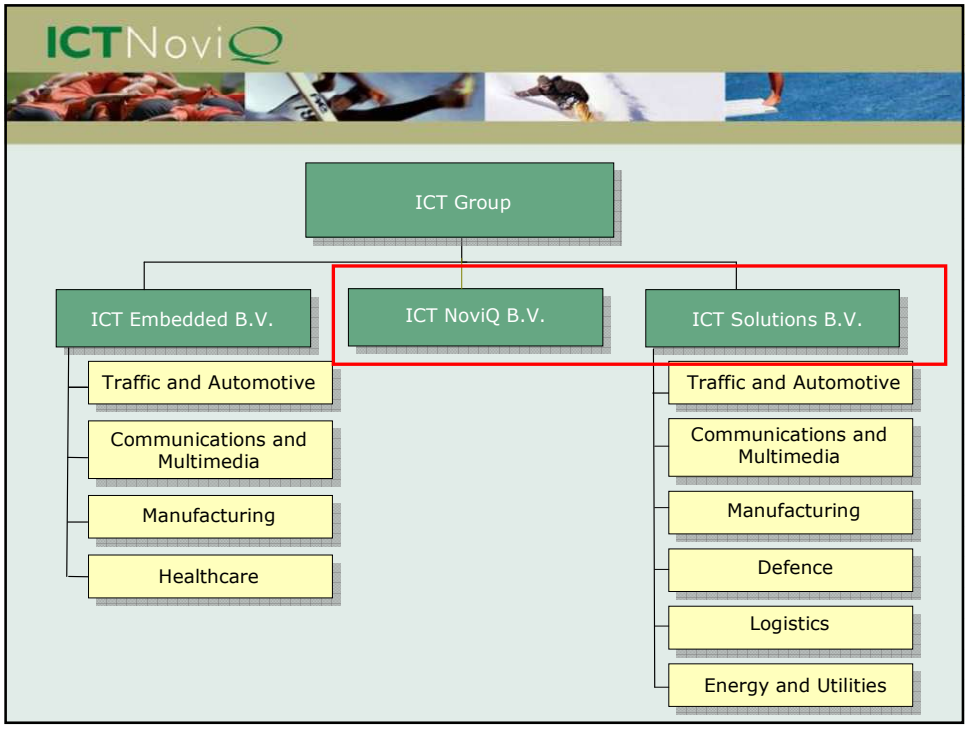
Groningen

München (Germany)

Xcc Software

Karlsruhe (Germany)

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– Subsidiary of ICT Automatisering N.V.
– NoviQ: New approach in Quality
– 15 → 20 FTE
Consultancy, Training & Services in Engineering
– Software Architecture
– Requirements Engineering
– Configuration Management
– Process Improvement
• Quality Assurance

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What is service creation?

- Telephony providers offer services
  - Point-to-point communication
  - Conference calls
  - Voice mail
  - Call forwarding
  - Help desk facilities
- Services are part of infrastructure
  - Part of PSTN Exchanges
  - Part of VoIP server side solutions
  - IMS (IP Multi-Media Subsystem)
- Services are combined to create new services
  - Involves manual configuration
  - May involve software coding
  - Is a repetitive job

IMS

- IMS aims at and infrastructure and applications that
  - Integrate different communication possibilities
  - Integrating different media
  - Based on internet and telecommunications technology
- In order to achieve this, we need to
  - Create the infrastructure to deploy it
  - Creating new applications to use it
  - Facilitate application and service development

ICT offers a Service Creation and Run-time framework
- Part of infrastructure
- Aimed at easily creating and deploying IMS services

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Concept: Domain overview

The Service Creation Environment distinguishes between three domains. Service creation is complex for developers, because the application domain is flow driven, while the lower layers are event driven.

Application Domain

Converged end-user services

Service Enabling Domain

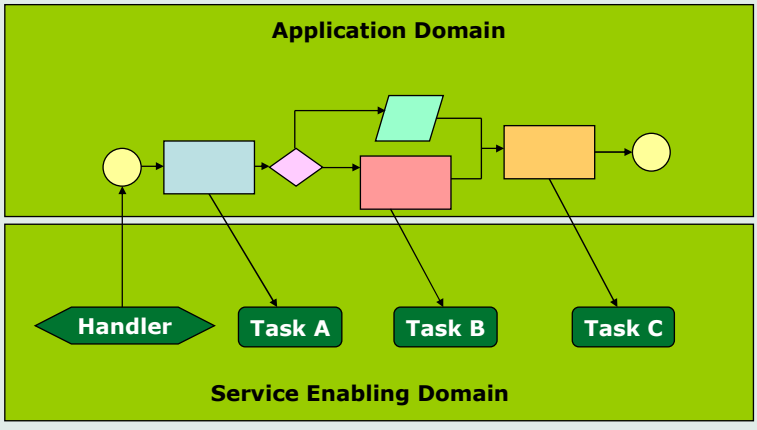
Unified access to different communication channels and network resources

Connectivity Domain

Transparent connectivity through various fixed and wireless networks

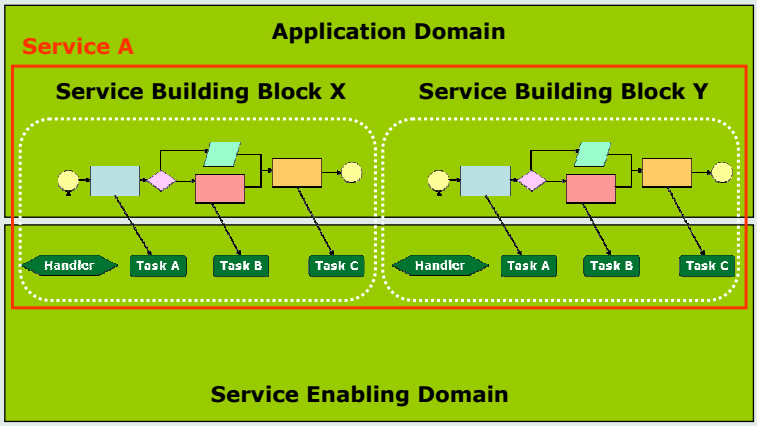
Concept: Steps

"Steps" are core concept for service creation in Application Domain Framework. A step is the smallest building block in the application domain.



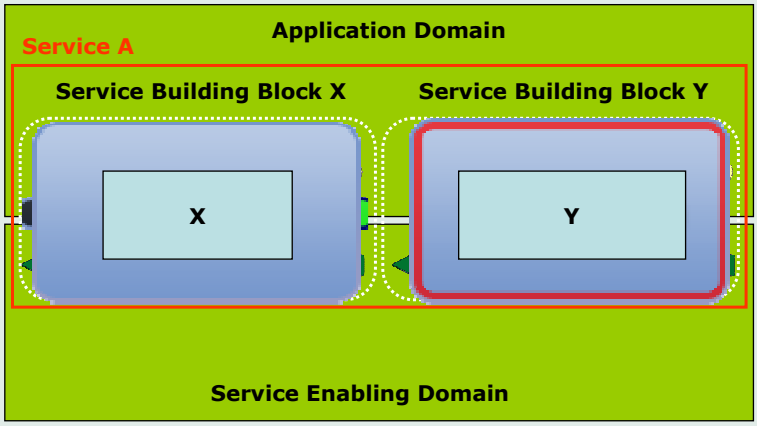
Concept: Service Building Blocks

The Application Domain framework allows steps to be combined.



Concept: Service Building Blocks

The Application Domain framework allows steps to be combined.
Resulting Service Building Blocks (SBB) are reusable and can be combined (orchestrated) to build end-user applications.



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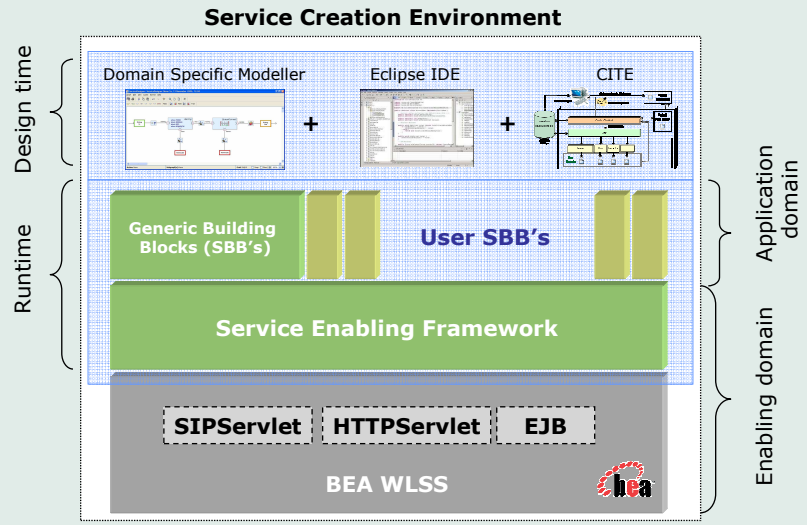
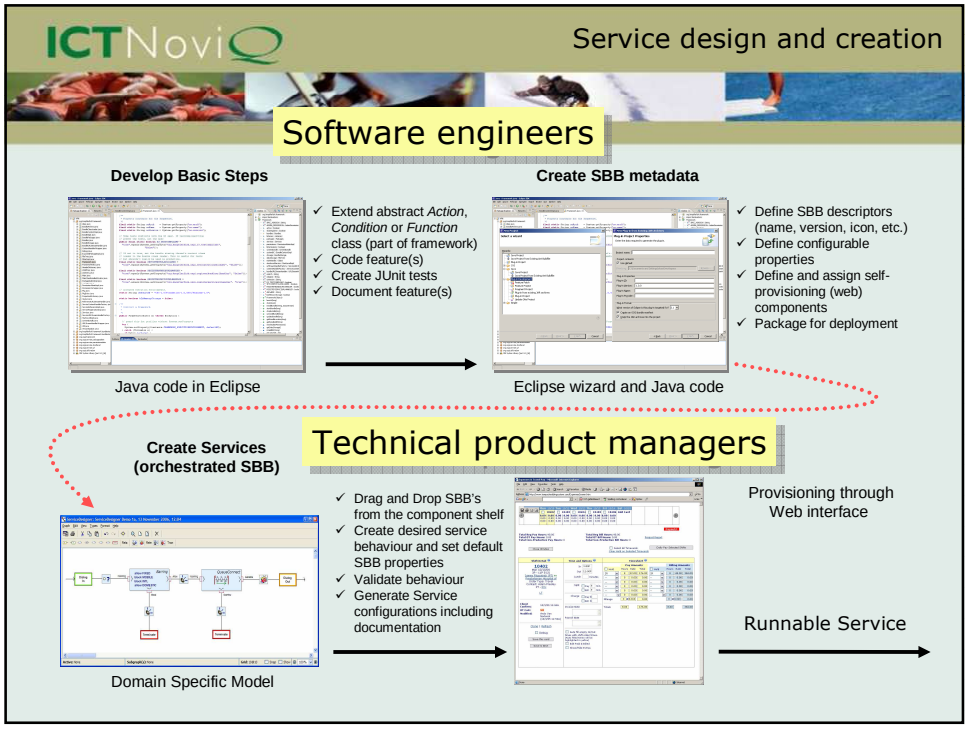
Service Creation Environment

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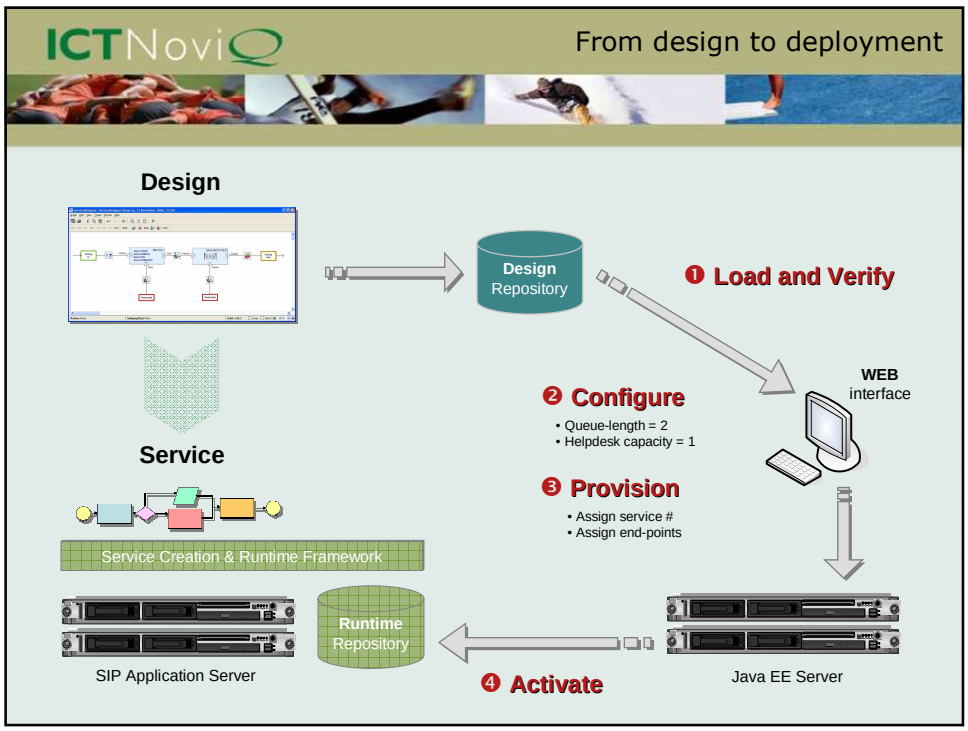
Service design and creation
Software engineers
Develop Basic Steps
Create SBB metadata
✓ Extend abstract Action, Condition or Function class (part of framework)
✓ Code feature(s)
✓ Create JUnit tests
✓ Document feature(s)
✓ Define SBB descriptors (name, version, icon, etc.)
✓ Define configurable properties
✓ Define and assign self-provisioning (web) components
✓ Package for deployment
Java code in Eclipse
Eclipse wizard and Java code
Technical product managers
Create Services (orchestrated SBB)
✓ Drag and Drop SBB's from the component shelf
✓ Create desired service behaviour and set default SBB properties
✓ Validate behaviour
✓ Generate Service configurations including documentation
Provisioning through Web interface
Runnable Service
Domain Specific Model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From design to deployment
Design
Design Repository
❶ Load and Verify
WEB interface
❷ Configure
• Queue-length = 2
• Helpdesk capacity = 1
Service
❸ Provision
• Assign service #
• Assign end-points
Service Creation & Runtime Framework
Runtime Repository
SIP Application Server
Java EE Server
❹ Activate

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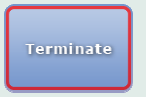
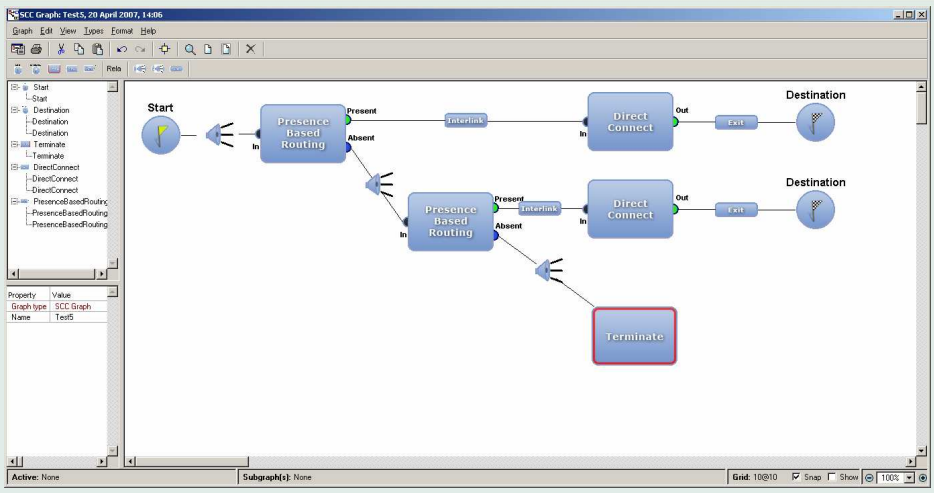
Sample SBBs



Flow terminators

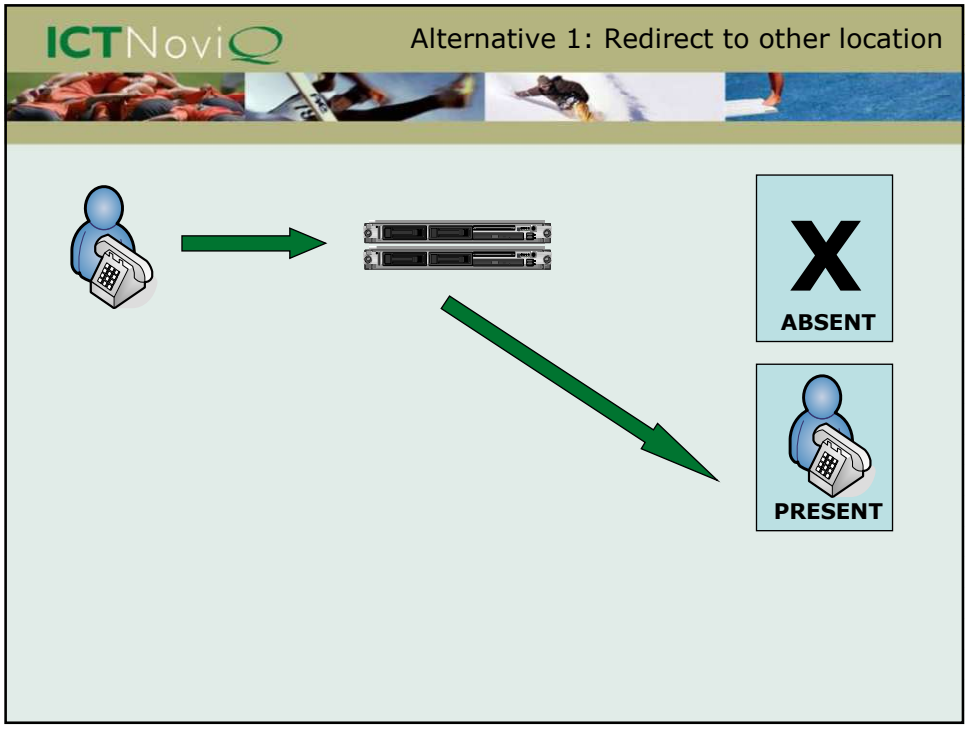
Relationships

A sample model



A basic sample. More complex uses include region and time based routing for e.g. Helpdesk applications.

Default scenario: user present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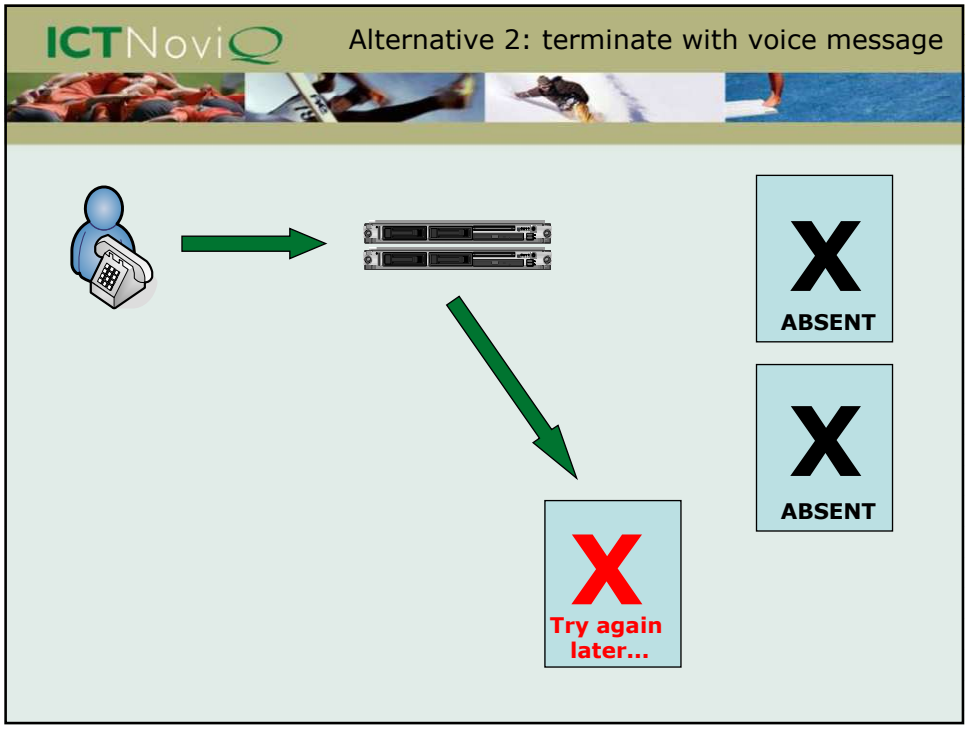
Alternative 1: Redirect to other location
X
ABSENT
PRESENT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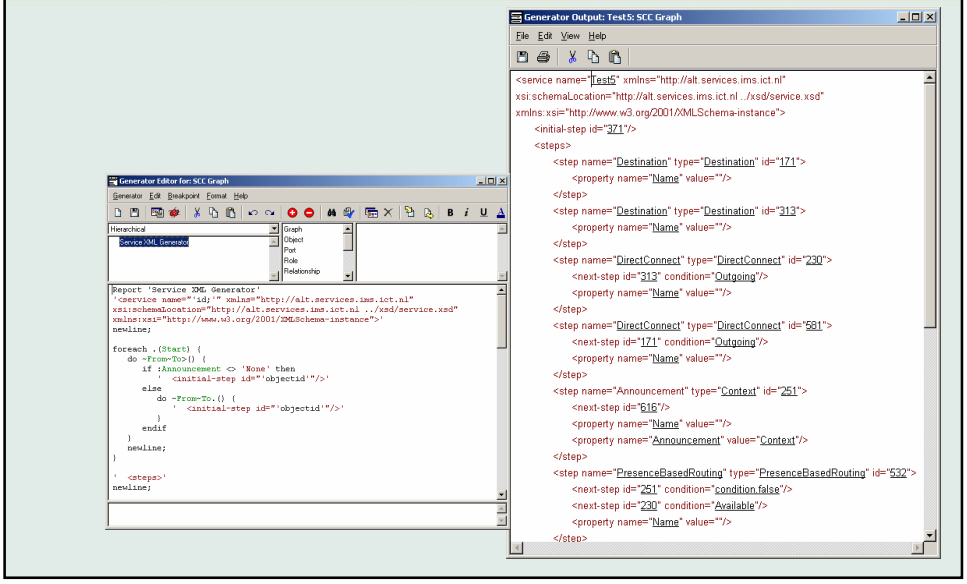
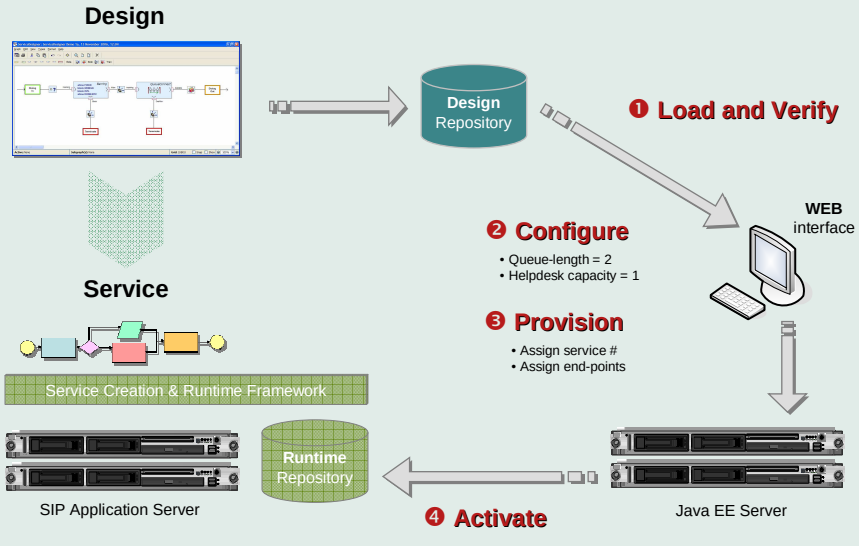
Alternative 2: terminate with voice message
X
ABSENT
X
ABSENT
X
Try again later...

The code generator



Concept: From design to deployment



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Status Quo

- Working on realisation and deployment
  - Together with service providers
- Extending our knowledge
  - We know the problem and solution domain
  - Bridging using DSM is new
    - First projects underway – and successfully so

Future challenges

In view of DSM
- Collect user experiences at service providers
- Further use of DSM
  - SBBs are now created manually in Java
  - Orchestrating steps into SBBs in MetaEdit+
  - Generate Java next to XML

In the application domain
- Add new services
  - Telephony is being replaced by multi-media
  - Makes domain larger and more complex
- Create new products
  - There's more, beyond service creation

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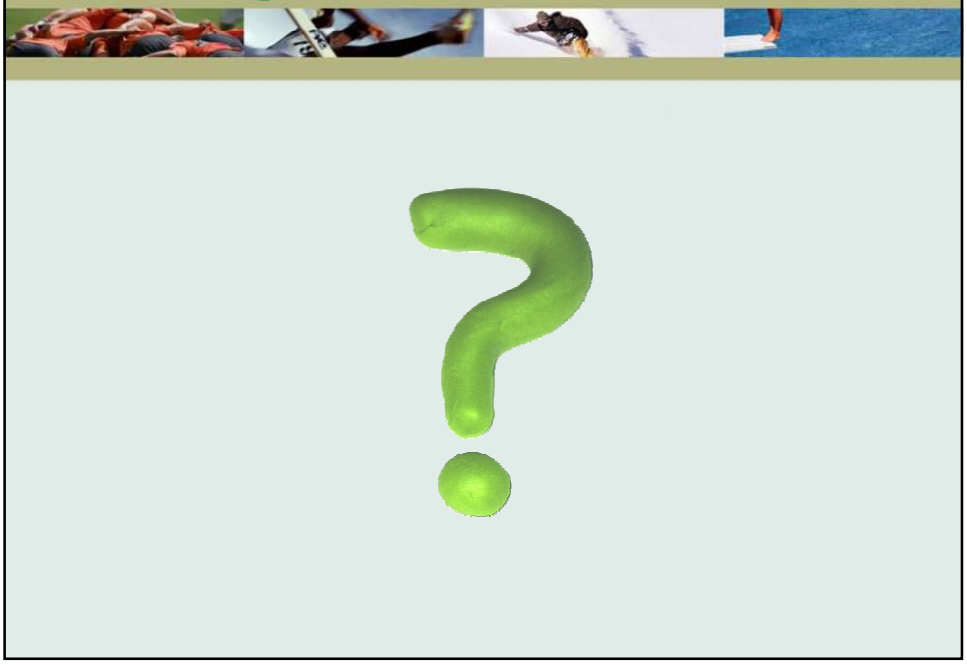
Questions?



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- JPT:
- - metamodel is evolving (can get 2* more types than after introduction)
- - existing service specifications need to be updated if language changes


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