System Integration

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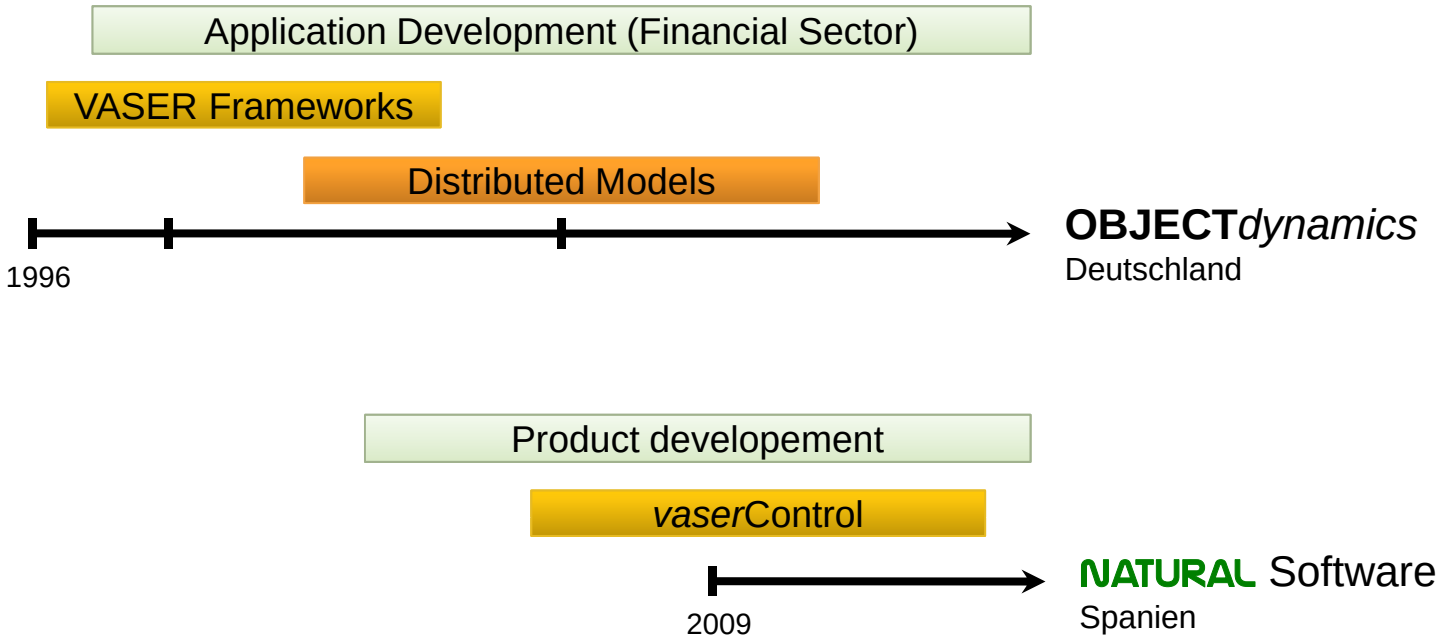
About me and us



References

ZFS – Zurich Financial Services

VKB

Hugo Boss

Deutsche Bank

OBJECT*dynamics*
Germany

NATURAL Software
Spain

superDeli

ianus

Private Villas

Presentation

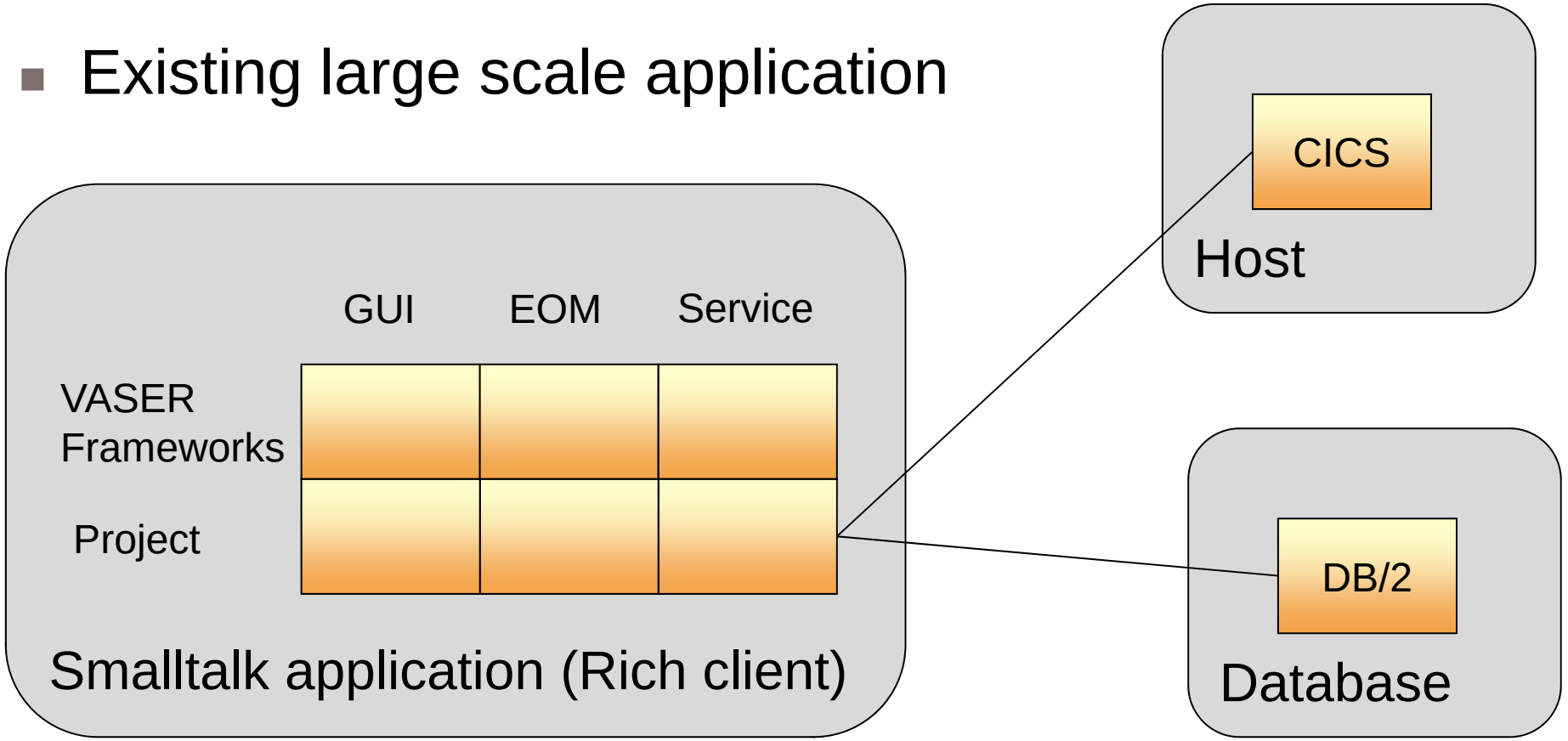
- It all started back in 2000…
  - Existing application
    - Insurance application
      - Management of new and existing life insurance contracts
  - Needed to build Java Frontend
    - Distributed environment
  - Implemented a facade- based access to Smalltalk
  - Over the years…
    - We used the same technology to build
      - Smalltalk Clients
      - C# Clients

Existing application

- Existing large scale application
  - Complex architecture
    - Access to DB via CICS/Cobol
    - Model driven approach
  - Complex business object model
  - Existing Rule engine
    - Very small granularity of rules being used
    - Basically every entry is checked

Architecture

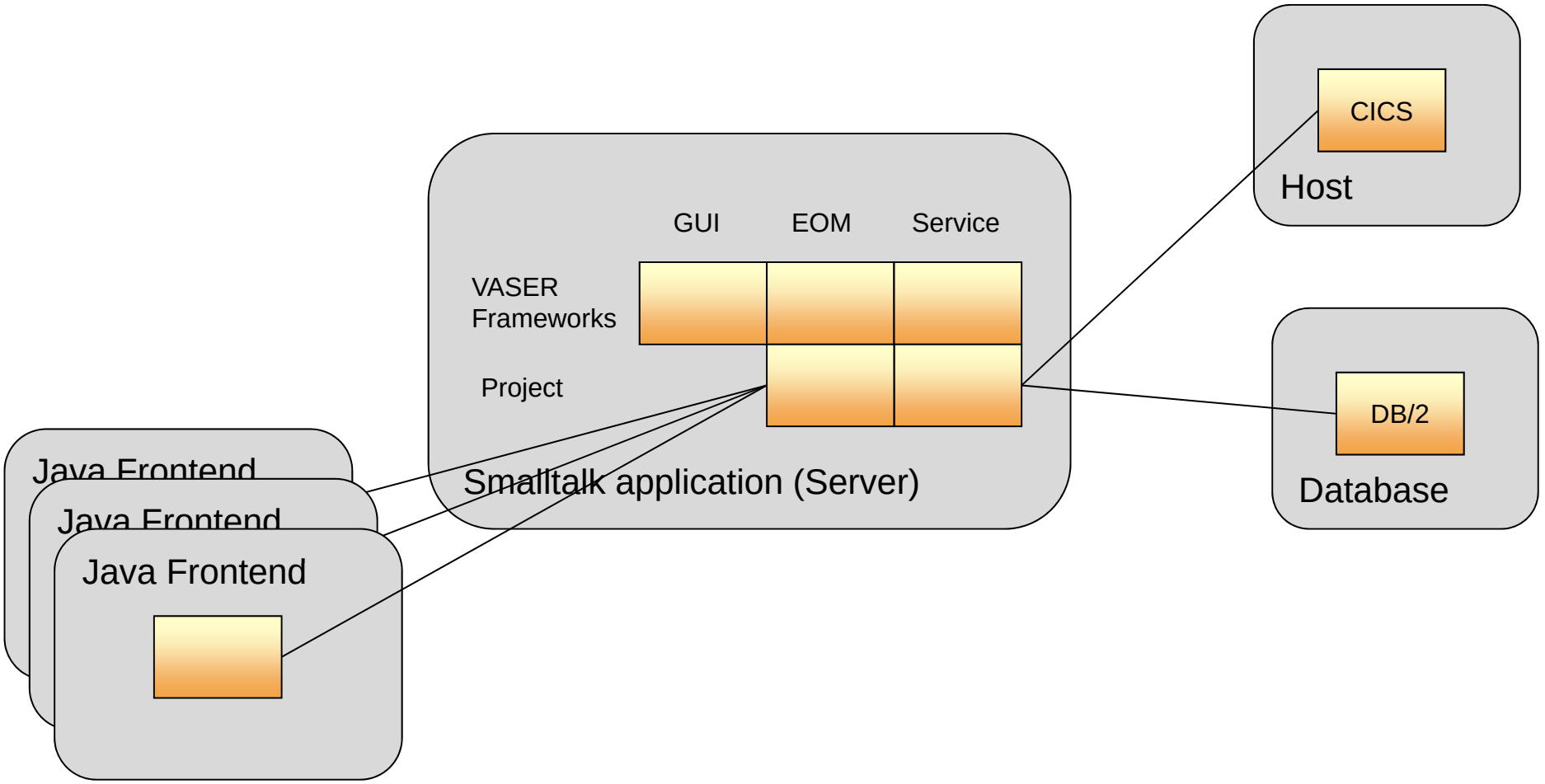
- Existing large scale application



New Development

- Requirement
  - Turn the „rich client“ application into a advanced, distributed application
  - Build a Java Frontend
    - Use AWT (2000)
    - Later Swing (2003)
  - „Re-Use“ existing application as central backend
    - Transformation from „Rich client“ to „Server“
      - Multiple parallel transactions
      - Multiple concurrent instances of the object model
  - ~~14.000 Clients in ~~3.000 locations using 7 servers

New Architecture



Requirements

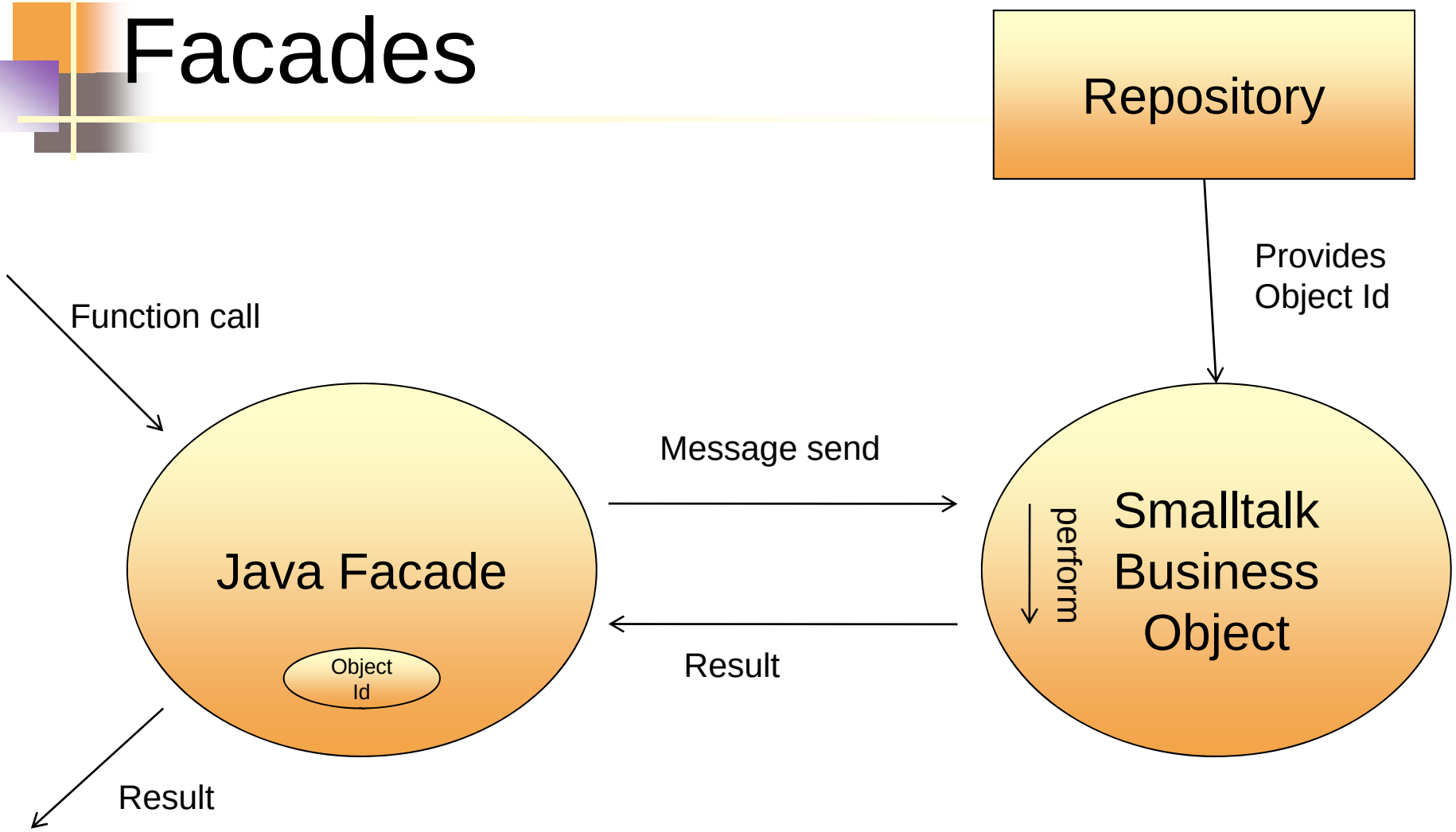
- Access to the object model from a Java frontend
  - Low granularity
    - Methodlevel (Action)
  - Fast
    - On method executions, normal rule checking has to occur
  - Scalable
    - Target: 14.000 Clients using 7 Servers

Decision Table

- Decisions (Remember, this was in 2000)
- Communication on an object level

	+	-
Java/RMI	•Available	•Slow •Only Java datatypes •Granularity too large
Corba	•Available •Standard	•Slow •Only Corba datatypes •Granularity too large
Webservices		•Haven‘t been invented yet…
VASER RemoteRepository	•Fast •Fits into the Backend Architecture	•Had to be developed

Facades



Facades

- Java Facade for a Smalltalk Object
  - Actions
    - Actions may be performed and may change attributes
  - Attributes
    - Changes in attributes invalidate derived attributes
    - Cache for server values
  - Behaves „like a Smalltalk Object“

Cool stuff

- aFacade inspect
- Debugging
- Breakpoints
- Development in the debugger
  - I do 80% development in the debugger

Analysis

- Network Latency biggest performance issue
- Block size 1…2k Byte
- Number of datablocks and parallel sockets was/is not an issue

Other functionality

- Event propagation
  - Facades have to be marked invalid, if someone else changes a value
  - Solution: EventManager waits on events for registered objects

Event propagation

- Distribution of changes
  - Objects are marked read-only
  - If read-only exception
    - Change will be done anyway
    - Object fires events to registered facades to invalidate attribute value
    - If required – client facade reloads

Other functionality

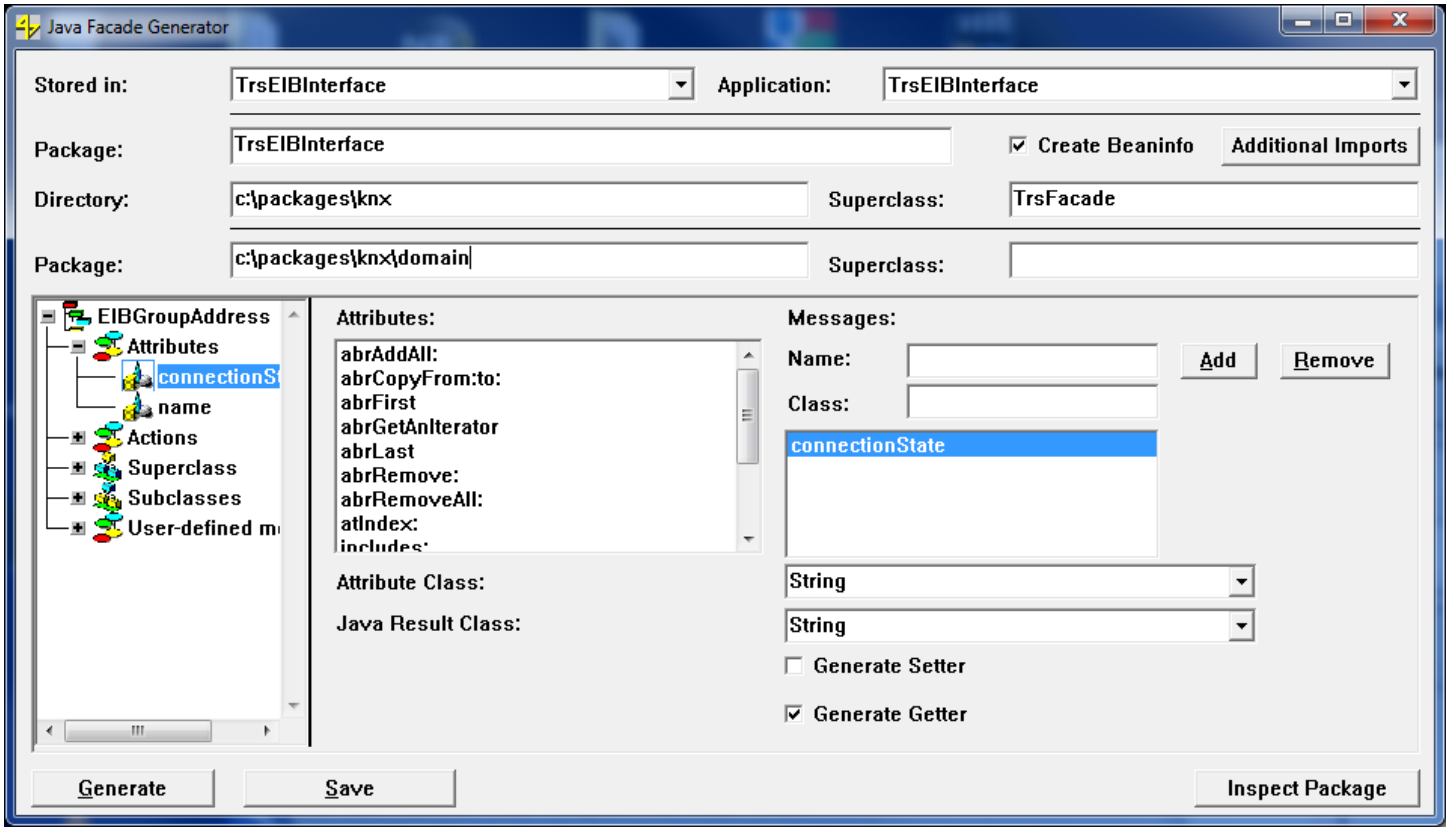
- Garbage Collect
  - Side effect of event propagation
  - All remote objects are in a weaktable (RemoteRepository)
    - Remote usage is a object reference
  - If taken out, they send a special event

Other functionality

- Performaning an action requires
  - Invalidating and reloading all attributes
  - Reloading all attribute descriptors
    - Type
    - Fieldlength (for databasemapping)
    - Infotext (Information about each attribute like „value has to be between x and y“)
  - Messages
    - Information, Warning, Error, etc.

Tools

- Facade generator

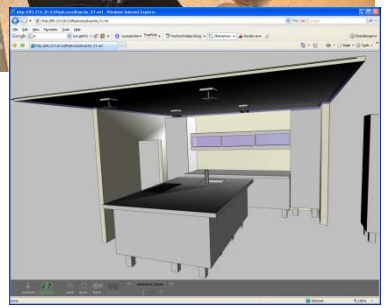


Other programming languages

	Facades	Tools	Application
Smalltalk	Generic Facade	Not needed	VASERControl •Editor •Registration •Distributed Energy metering
C#	Yes	Yes	VASERControl Frontend •Silverlight •Microsoft Surface
Java	Yes	Yes	•Insurance project •SpiritSE Test tool
Actionscript (Flash)	Yes	No	VASERControl Frontend •Flash

*VASER*CONTROL

- Product development
  - 2004 – Renovation of our kitchen
  - Latest gadgets
    - KNX
    - Serve@home
    - Miele@home
  - Integration? Yes, but how?

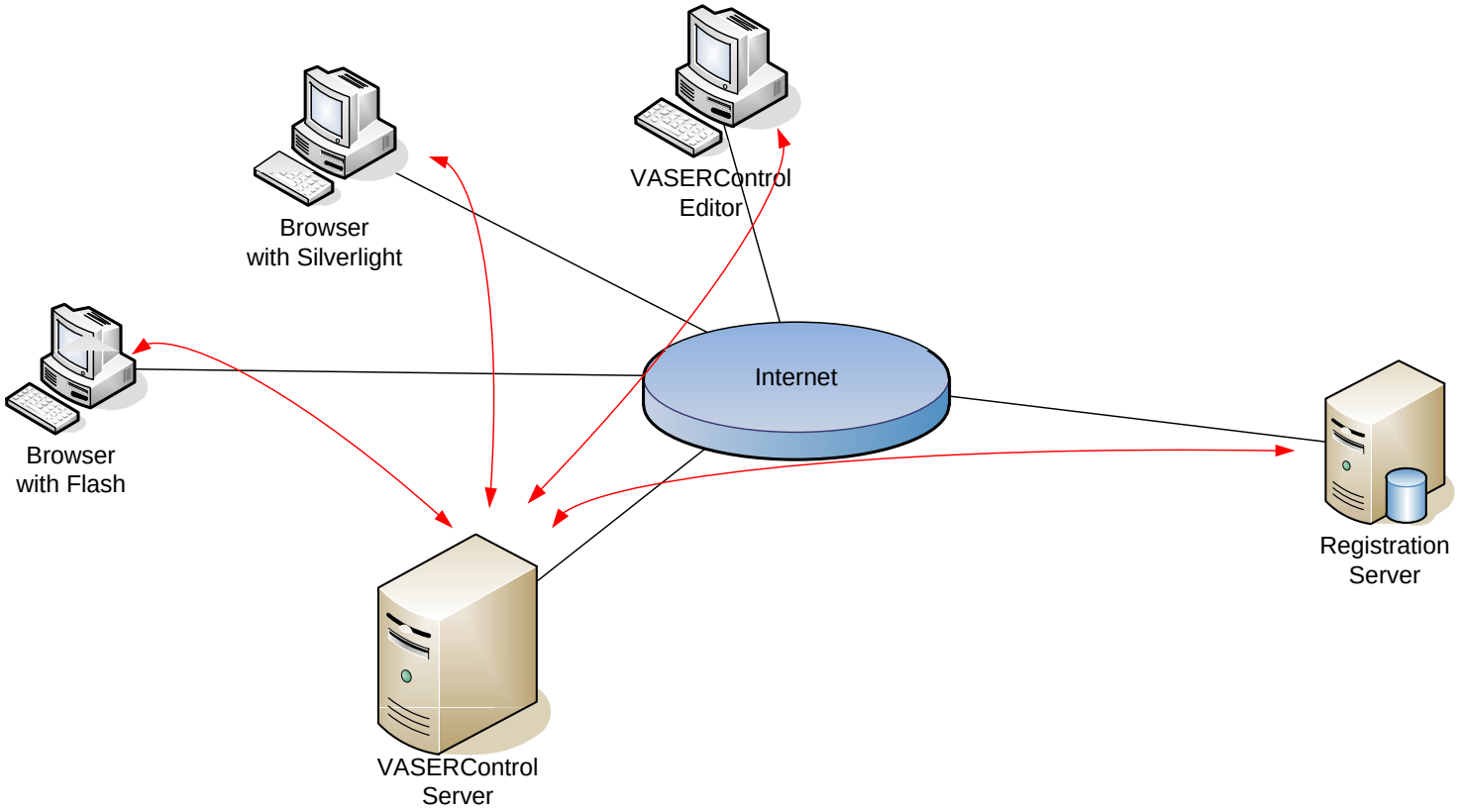


  - VASER framework usage led to *VASER*CONTROL product development

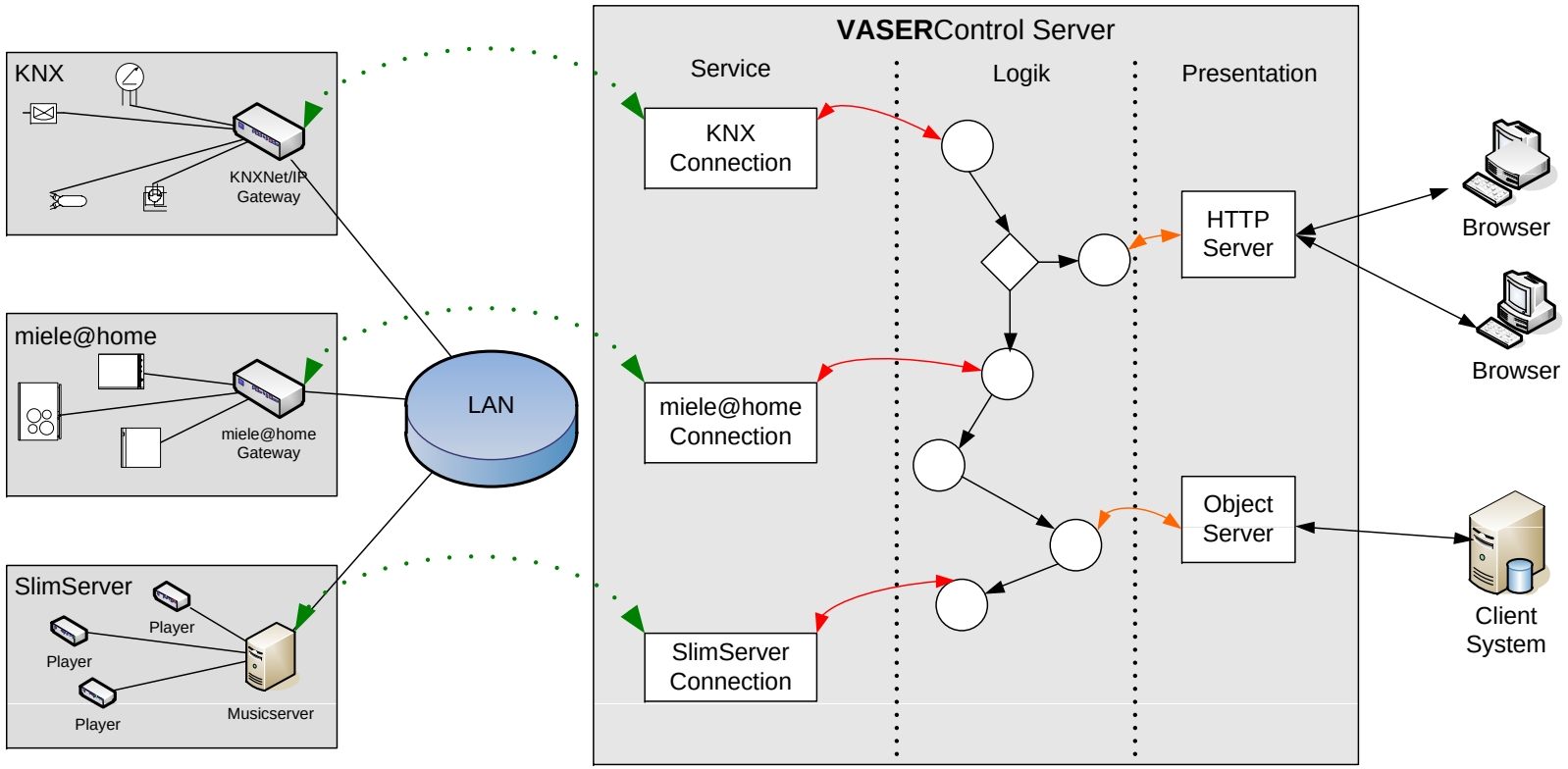
VASERCONTROL

- Goals
  - 1. Integration Platform
    - Making the best use of all the automation systems
  - 2. Visualisation
    - Making all the different systems usable

Using RemoteRepository



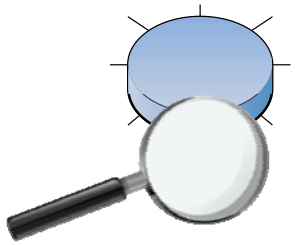
Architektur – Architecture

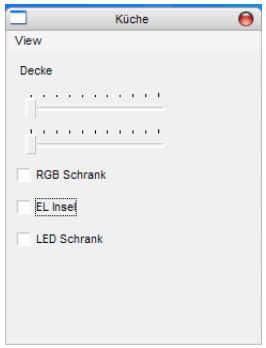


VASERCONTROL

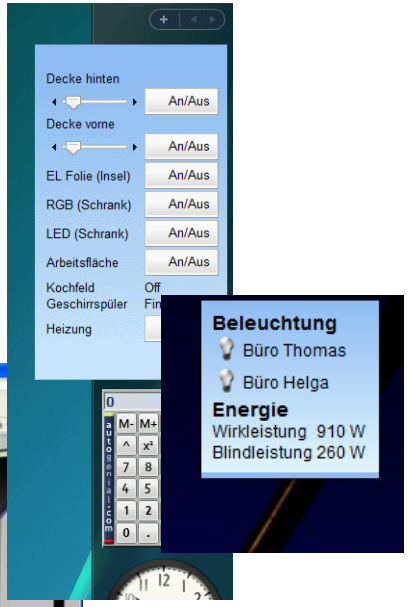
- Multiple visualization possibilities

IPhone

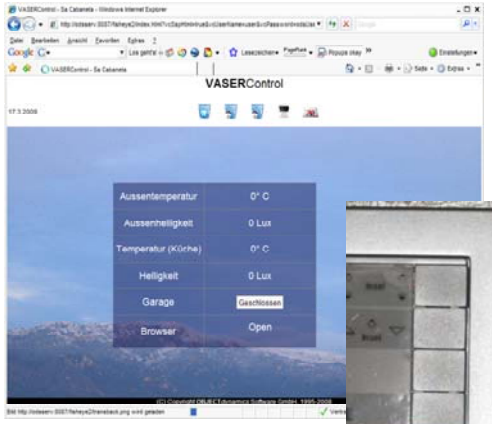




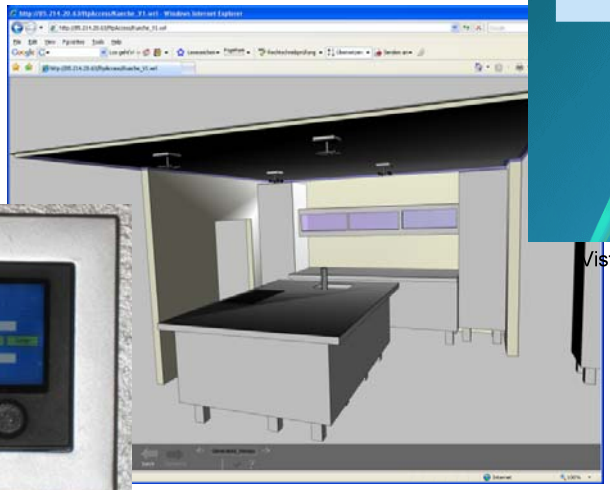
Java Client



Vista Sidebar



HTML Client

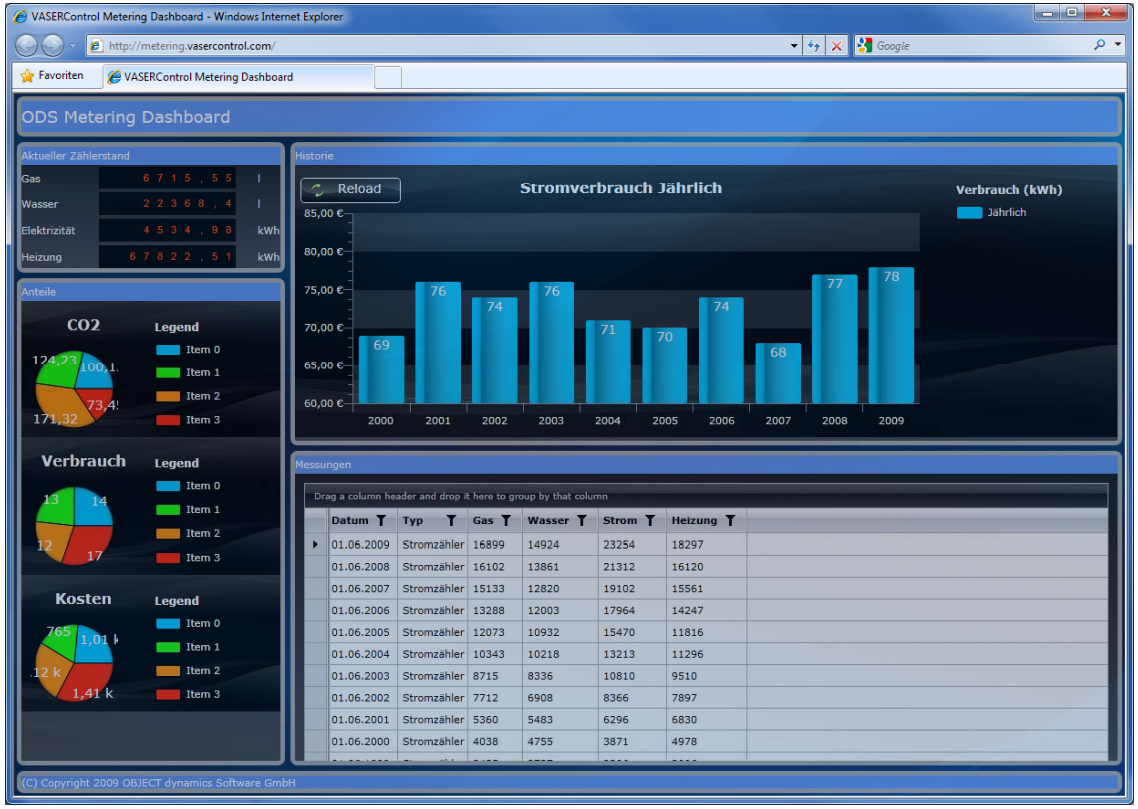


Java 3D Client

Micro-VIS II

VASERCONTROL

- Energy Dashboard (Silverlight Basis)
  http://metering.vasercontrol.com/



VASERCONTROL NextGen

- Microsoft Surface (3D rotating)

The best way to predict the future is to invent it.

Alan Kay

Good things are simple.

NATURAL Software - Practice

Thank you

- Questions? More information?

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- http://www.vasercontrol.com

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