

# ITI's Smart Living Program SOA Front Office superportal

## **eHealth project:**

(Open standard spec: OASIS BCM/CAM – EPR SC )

**P**ublic **S**upervision & **Q**uality **A**ssurance **for 70+**

**EPR-forum**

**&**

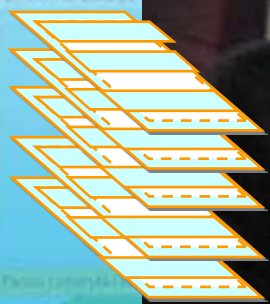
**Directorate of labour and Welfare (NAV)**

# PSQA-program: eHealth 70+ HomeCare

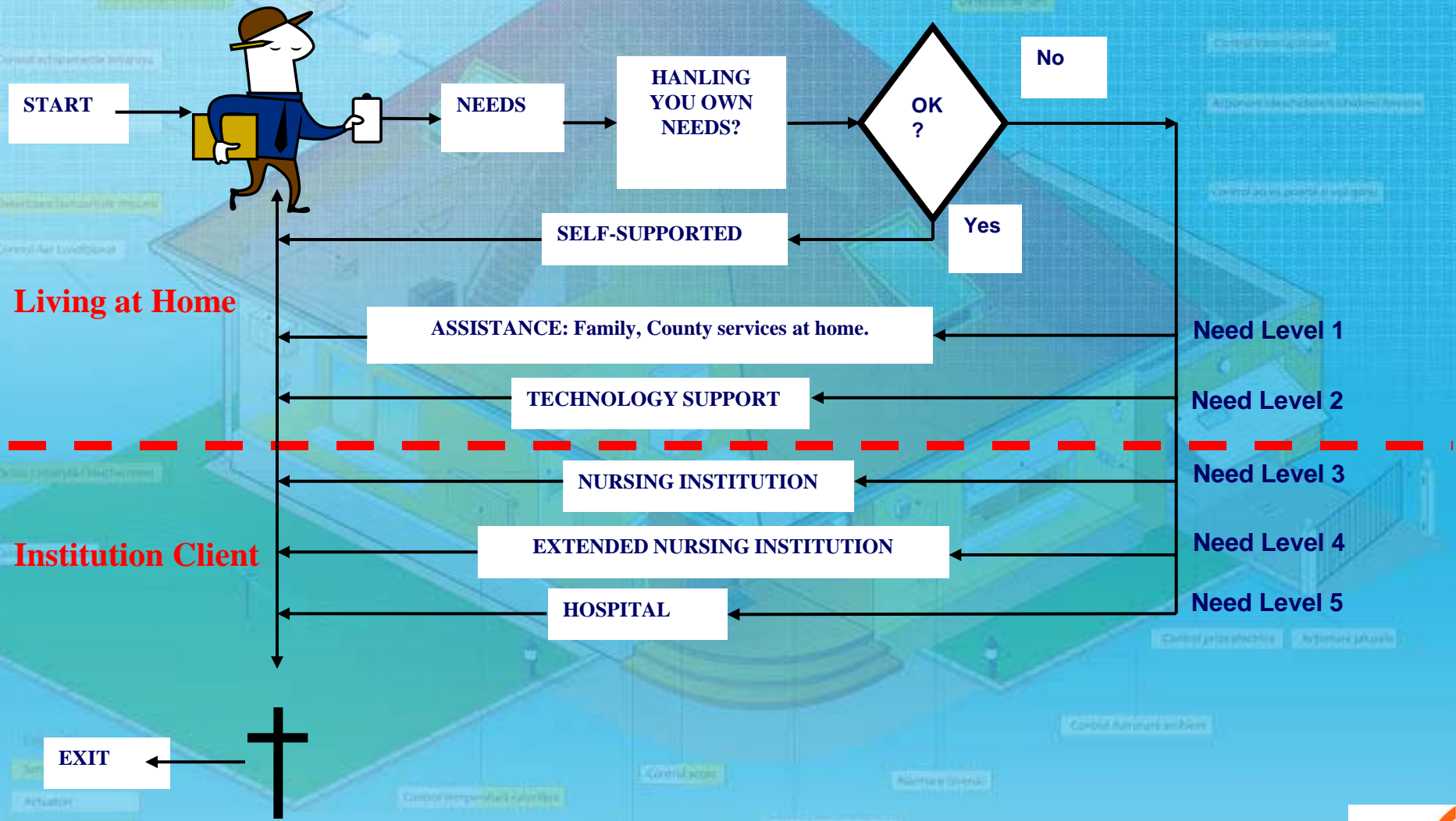


Home Care & Home Nursing **handling** Integrated Service Planning & Reporting.

**(Task description/Reporting/Inspection by help of PDA-phone. SIM-card = Digital signature)**



# Care needs & Levels



# Why PSQA Alliance?

Standardized and Atomized Mechanisms in Public Supervision and Quality control or do you prefer anarchy ?

The Fundamental Understanding into Holistic thinking:

## Public-Interests

( Safety / Justice / fair competition )

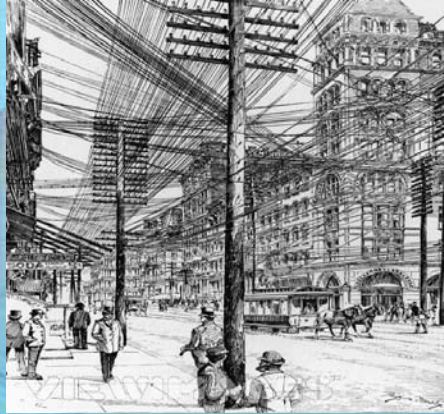
- Service Orientation ?
- Infrastructures ?
- Common "Traffic Rules" ?

## Citizens interests

## Industries interests



# Are we able to learn from previous standardization mistakes ?



## Or are we into doing new mistakes ?



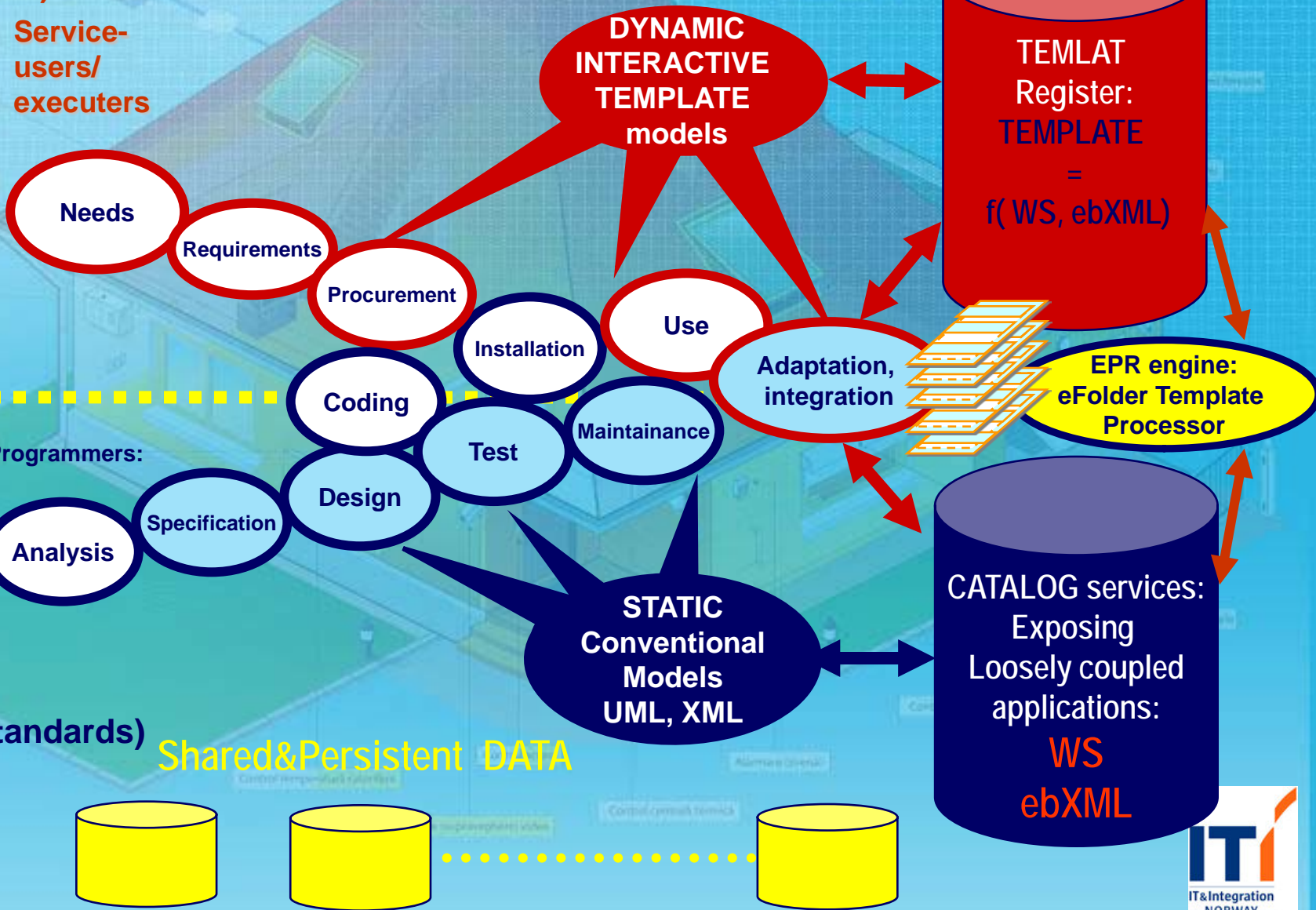
# The new SOA way of doing XML-based SW design in Real Time

**SOA**

( Template Design Factories consuming Web Services and ebXML )

(standards)

Service-  
users/  
executers



# What is the “true” SOA Paradigm Shift ?

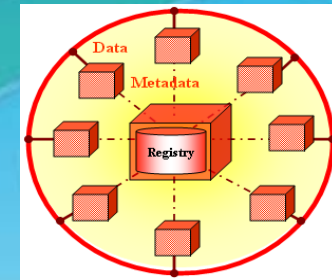
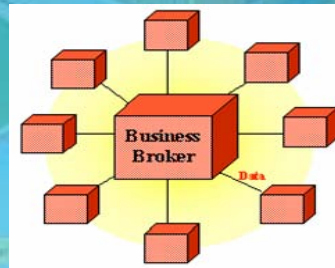
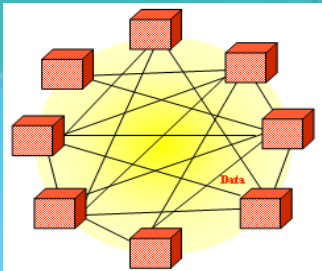
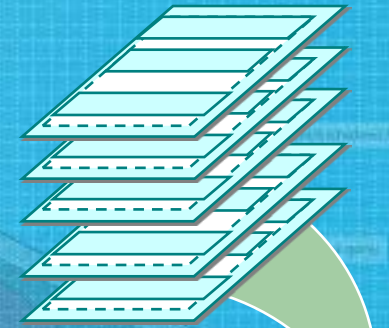
## ● Traditional Approach

- ETL (**E**xtract **T**ransform & **L**oad)
- EAI (**E**nterprise **A**pplication **I**ntegration)
- UML (**U**nified **M**odeling **L**anguage)
- Data warehouse
- B2B + electronic commerce

## ● New Holistic Approach( **Template** driven )

( **SW design needed for CHOICE, CHANGE and GROWTH** )

- Service Oriented Architecture
- Business Centric Models
- Context Driven Environment
- Semantic vocabularies and othologies
- XML implementation



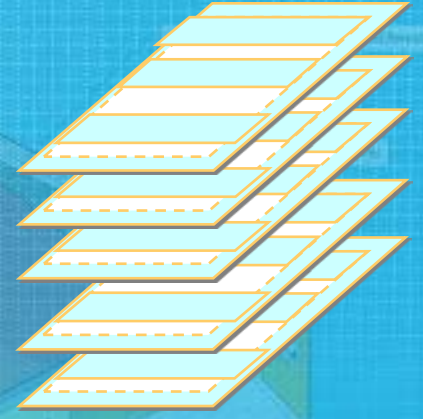
Source: eProcess Solutions

Ad Hoc

Hub n' Spoke

Service-Oriented (SOA)

# Do we want vendor locking in our common and inclusive SOA community: e-Norway / e-Gov ?????



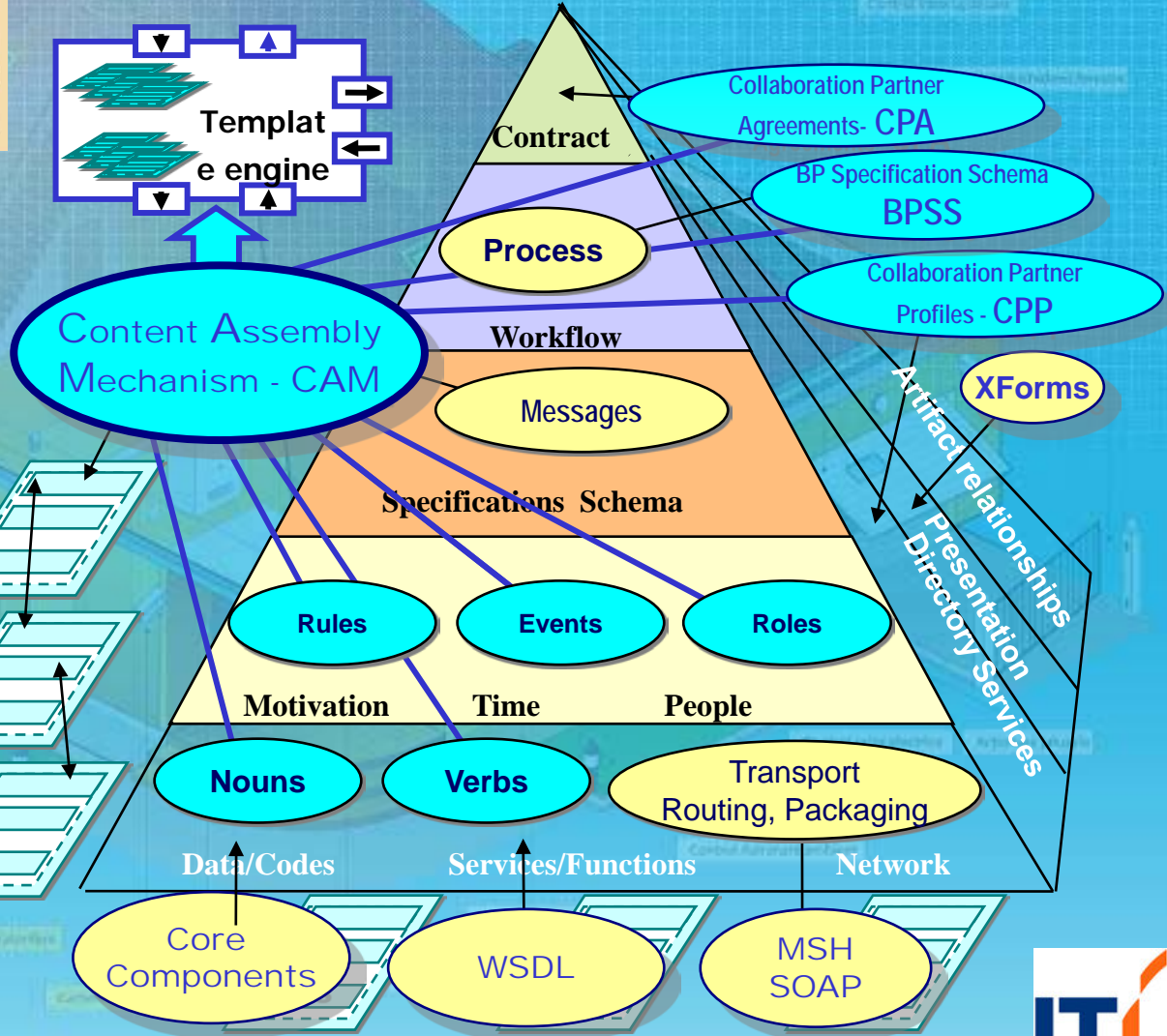
## Or COMPATABILITY of competing frameworks :

- **Apache SOAP** / **ZOPE**: Open Source ( PHP , Perl, Plone, mm )
- **.NET** Microsoft
- **SunONE** Open Net Environment Sun Microsystems ( J2EE )
- **WebSphere** IBM ( J2EE )
- **WebLogic** BEA ( J2EE )
- **MySAP** SAP ( J2EE )
- **HP Web Services** HewletPackard ( Apace SOAP (Cocoon2), J2EE )
- **Orbix E2A** IONA ( J2EE )
- **Oracle Web Services** ORACLE ( J2EE )
- **.MAC** Apple
- **etc**

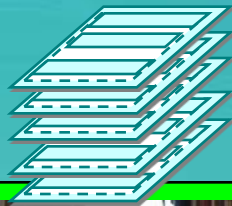


# Semantic Interoperability Standards Stack

(OASIS- CAM , BCM , SAML , ebSOA, BPEL , .....)

**eFolder Templates:**  
Organizing and Orchestrating Loosely coupled applications (**ebXML, WS**)



Source: OASIS BCM Lubash Pyramid



# Processing "Steering cards"

( Dynamic Forms/Templates )

FrontOffice  
Service Desk

Roles/Actors

**SOA Service driven ( Templates )**  
Mirroring technology on business centric  
(semantic) terms and processes.

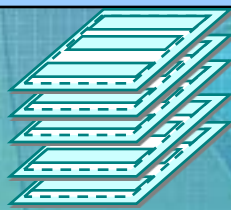
eFolders Processing of  
"Steering cards"  
( New way of SW Engineering)

**TOA Technology & Platform driven**  
- ebXML  
- Semantic Web Services

Traditional  
Data-  
systems

Transactions

**Trading partners in Supply Chain  
for eHealth-care services**



# ACCESS INFRASTRUCTURES: OASIS WSDL-Peers

## INTERNET / INTRANET Access Infrastructure:

### WEB Browsers:

(OS independent Client GUI)

Thin Clients...



### TCP/IP:

Web services technology:

- UDDI
- WSDL(Peer)
- SOAP

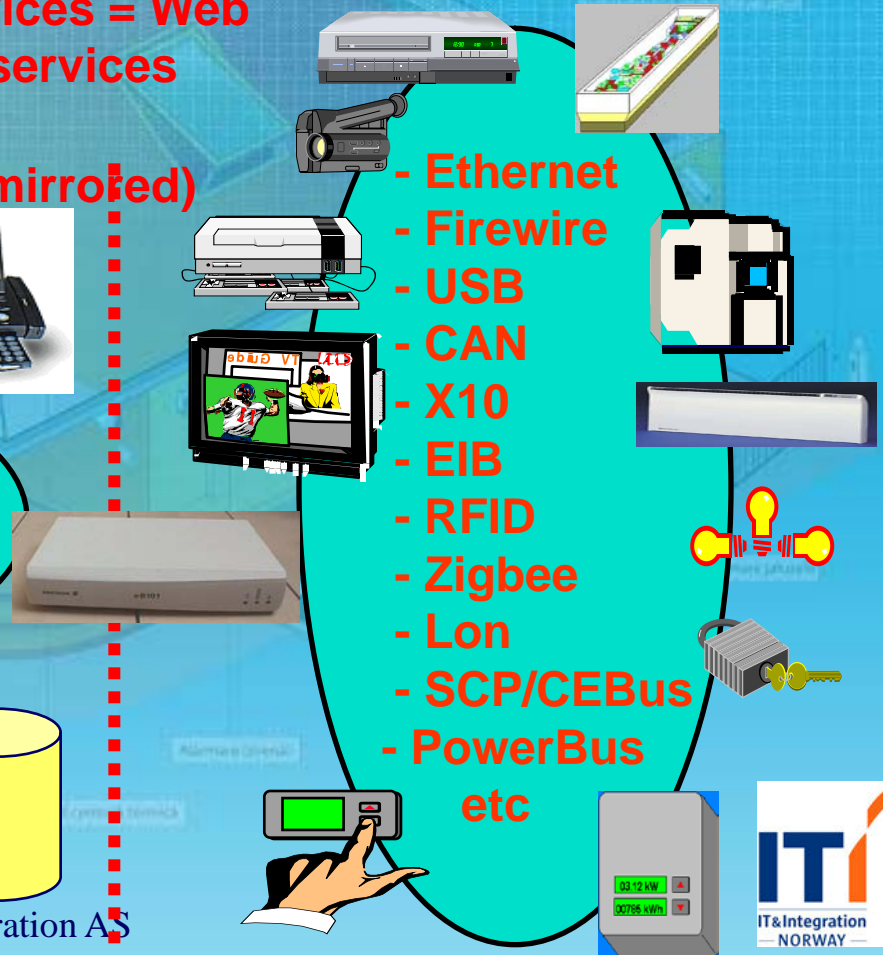
## PROCESS SERVER

### GATEWAY

Interface:

Devices = Web services

(mirrored)



## PROCESS NET Access Infrastructure Devices

## SOAFO

### WEB Access portals:

Portal + UDDI device catalog  
(WSDL-models of devices)






# ANSI/CEA-721(EIA 721) : ( Generic CAL )

Standards Search Results (2) - Microsoft Internet Explorer

File Bediger Vis Favoritter Verktøy Hjelp

Adresse Koblinger


   Visit TIA's Communications Portal

## Standards & Technology

HOME MAIN Search Standards Search Results Choose a Sub Category...

### Standards Search Results

4 record showing for **Document #** containing "**EIA-721**", ordered by Doc. #  
(Click on Doc. # to find/purchase through Global)

1. **Document #:** [EIA-721.1](#) (click to )

**Title:** Generic Common Application Language (Generic CAL) Specification


**Committee:** CEBus TSC

**Published:** February 1, 1998

**Category:** Consumer Electronics

**Description:** *This document describes the basic framework of Generic CAL. It is intended as an introduction to Generic CAL operation and syntax that stresses the object-oriented aspects of Generic CAL. It is believed that the object-oriented methodology offers the best means of understanding the complex interaction between devices, controls, and controllers present in a Generic Network environment.*

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**Document #:** [EIA-721.2](#) (click to )

**Title:** Generic CAL Context Description


**Committee:** CEBus TSC

**Published:** February 1, 1998

**Category:** Consumer Electronics

**Description:** *This document describes the contexts, or main subsystems within a*

Internet



# Abstraction layer based on the Engineerings-standard ANSI/CEA-721 that can be adapted to all “open” BUS-technologies:

- Ethernet ( TCP/IP)
- Firewire /IEEE 1394 ( Apple Computer )
- USB
- X10
- CAN ( car industry standard)
- SCP/CEBus ( Microsoft UPnP)
- RFID
- EIB ( Siemens )
- Lon ( Echelon )
- PowerBus ( Domosys)
- Zigbee
- etc

# Node ABSTRACTION LAYER

User Scenario variables picked from node product models:

**Universal Variables = User SCENARIO Variables**

**MEASUREMENTS:** (Environment Inputs)    **ACTUATORS:** (Environment Outputs)    **SYSTEM/GUI Values:** (Internal SW values)

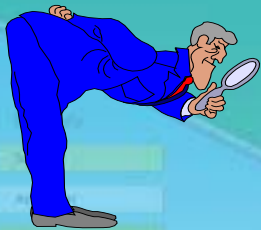
Temperature sensors ( °C )  
Humidity sensors ( %RH )  
Pressure sensors ( Bar )  
Dimmer sensor ( % )  
Speed sensor ( m/s )  
Voltage sensor ( Volt )  
Current sensor ( Amp )  
Load sensor ( kWh )  
Switch sensor ( On/Off )  
Pulses ( Counter )

Voltage output ( Volt )  
Level output ( % )  
Dimmer output ( % )  
Relay output ( On/Off )

.  
.  
.  
.

Thermostat setpoint ( °C )  
Alarm limits  
Clock  
Timer Event  
Intervals

.  
.



# ANSI/CEA-721 Interoperability Criteria

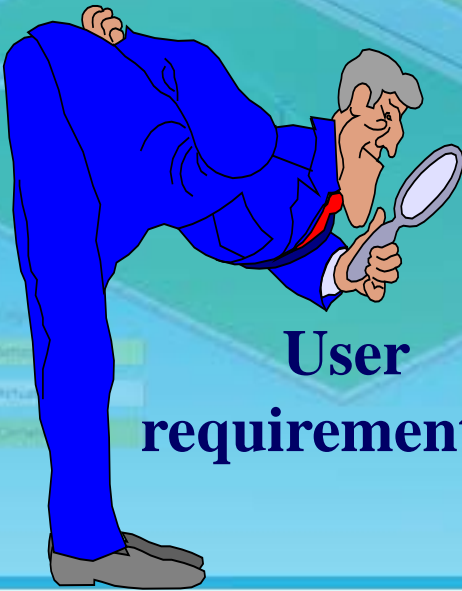
Node Product Modeling: (Service Oriented Architecture)

## Applications

(Nodes and Subsystem Addresses)

HC & UC House Code(Domain ID) & Unit Code(Node)

**User**  
(Application Interfacing)



**User requirements ?**



Lighting system



EL-meter



21°C  
Thermostat



HVAC



Video Phone



Interactive TV

## Interoperability layers:

(Application modeling+CAL)

**CX**

**OB**

**IV**

### Appl. Groups:

( Functional Profiles)

- 0x General
- 1x Audio/Video
- 2x Lighting
- 3x Communication
- 4x HVAC
- 5x Utility
- 6x Security
- 7x Appliance
- 8x Convenience

### Appl. Fuctions:

( SNVT, NV)

- 01 Node Control
- 02 CX Control
- 03 Data Chan. Rx
- 04 Data Chan. Tx
- 05 Binary Output
- 06 Binary Input
- 07 Analog Output
- 08 Analog Input
- 09 MultiPosition Output
- 0A Multi-State Input
- 0B Matrix Output
- 0C Multiplane Output
- 0D Ganged Analog Ctrl
- 0F Meter
- 10 Display
- 11 Medium Transport
- 13 Dialer
- 14 Keypad
- 15 List Memory
- 16 Data Memory
- 17 Motor
- 19 Synthesizer-Tuner
- 1A Tone Generator
- 1C Counter/Timer
- 1D Clock

### Appl. Variables:

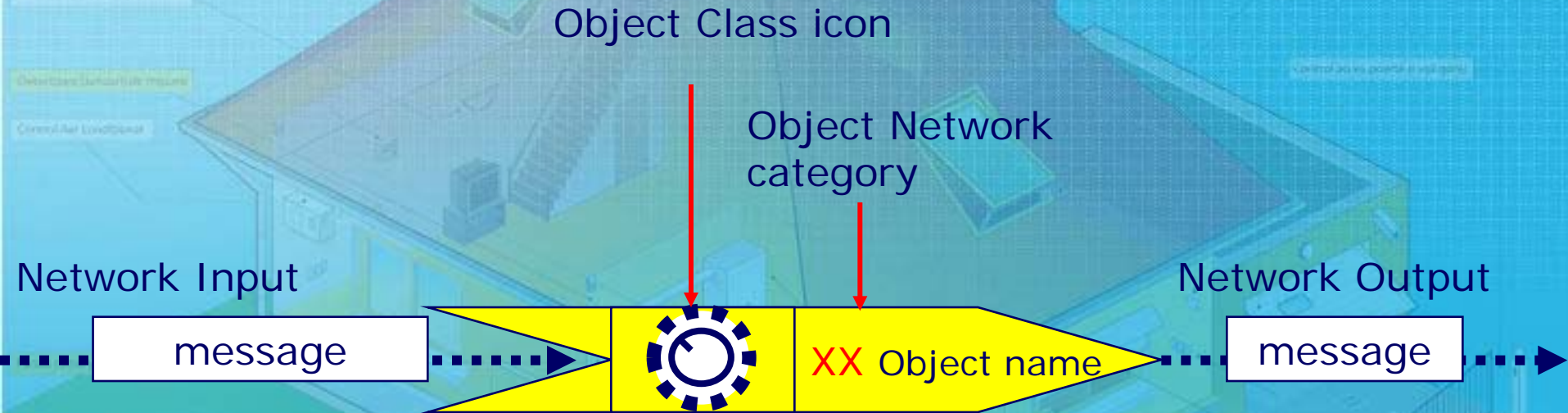
- b Boolean data (On/Off)
- c Letters (ASCII text)
- n Numbers ( Integer )
- d Binary data (Hex bytes)

### CAL scripting:

```

SETOFF
SETON
GETVALUE
GETARRAY
SETVALUE
SETARRAY
ADD
INCREMENT
SUBTRACT
DECREMENT
COMPARE
COMPARE_I
COPYVALUE
SWAP
EXIT
ALIAS
INHERIT
DISINHERIT
IF
DO
WHILE
REPEAT
BUILD
    
```

# Object icon format

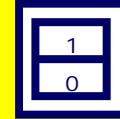




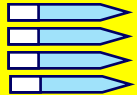
# Object Symbols



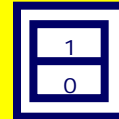
01 Node Control



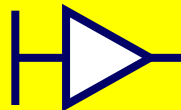
05 BinaryControl



02 Context Control



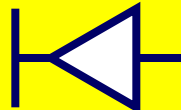
06 BinarySensor



03 Data Ch. Rx



07 AnalogControl



04 Data Ch. Tx



08 AnalogSensor

# Object Symbols



09 MultiPosSwitch

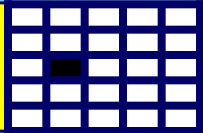
10 Display



0A MultiPosSensor



11 MediumTrans

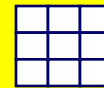
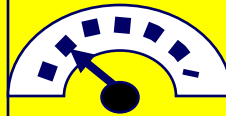


0B MatrixSwitch



13 Dialer

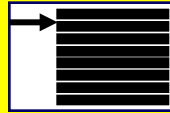
0F Meter



14 Keypad

# Object Symbols

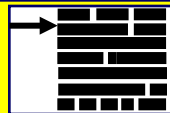
15 ListMemory



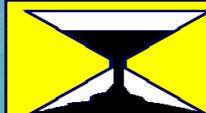
19 ToneGen.



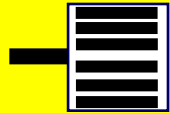
16 DataMemory



1C Counter/Timer



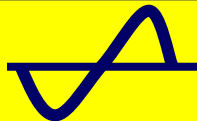
17 Motor



1D Clock

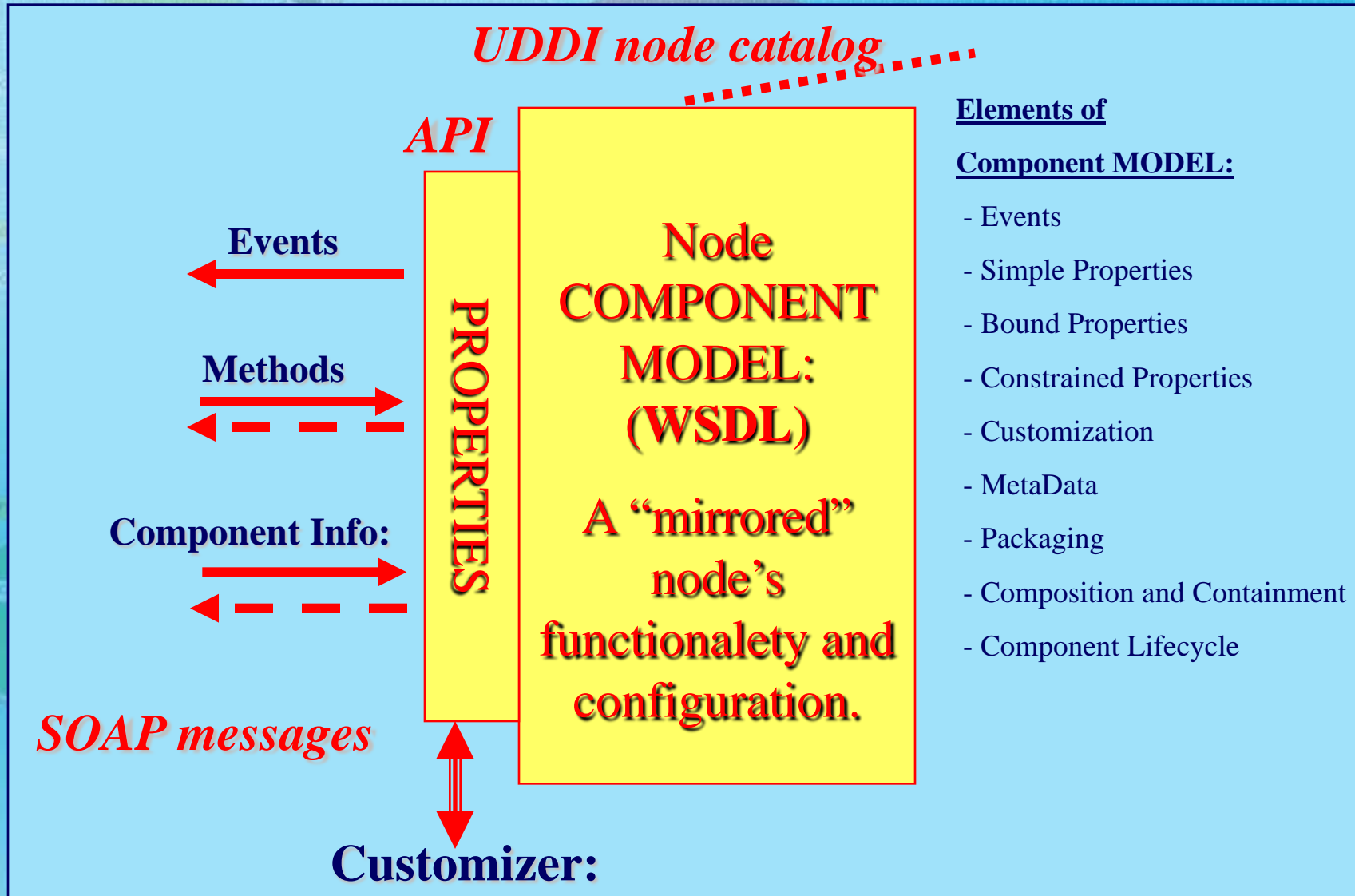


18 Synth/Tuner



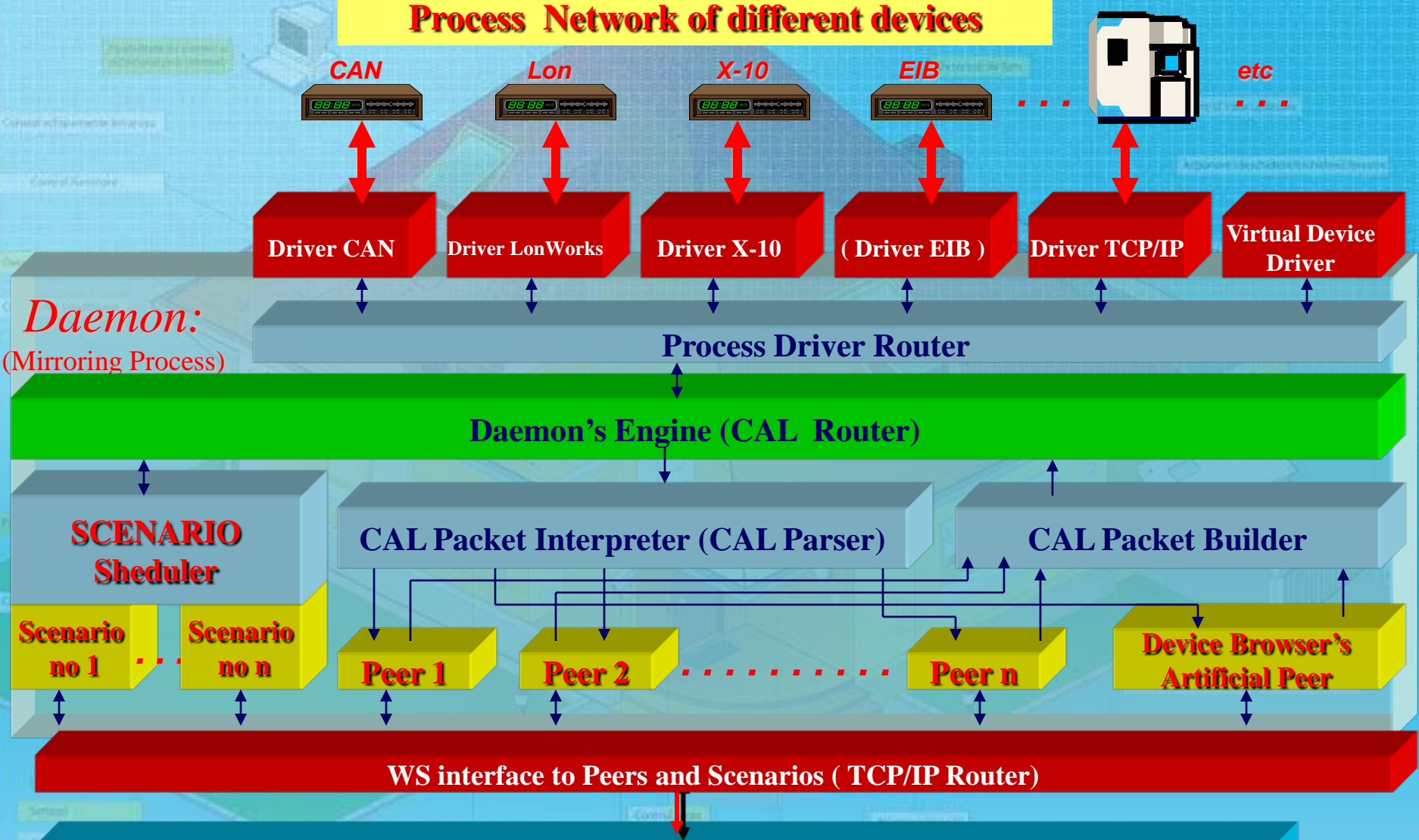
# Electronic device ( WSDL Peer- Node )

mirrored Web Services XML COMPONENT



# Process Server: (Peer = mirrored device)

## Process Network of different devices

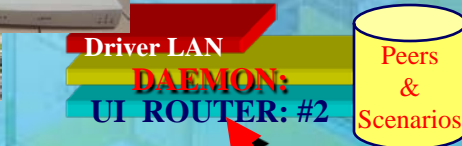


Process Server with UDDI exposed Web Services (TCP/IP)

# SW Components in the ESS System :

( TCP/IP and XML based distributed architecture: Remotely or Locally)

## ESS Process SERVERS:



## ESS GUI Browsing (User Interface CLIENTS):



.....



GUI: #m  
DEVICE BROWSER:

## ESS GUI Service & Installation CLIENT applications:

## Other Services based on SERVER TASKS:



# Browser GUI (ESS Client): Smarthouse Remote Control

The screenshot displays a web-based interface for smart home remote control. At the top, a navigation bar contains five buttons: a left arrow, "OVERSIKT" (Overview), "GANG" (Move), "Inngang" (Entrance), "Log", and a right arrow. The "OVERSIKT" button is highlighted in orange. In the top right corner, the IT&Integration NORWAY logo and a "Logout" button are visible. The main area shows a floor plan with various rooms and corridors. Each room contains several control icons: light bulbs, thermostats (showing temperatures like 23 °C, 22 °C, and 20 °C), fans, and other smart devices. Each icon is accompanied by a timestamp, such as 12:57, 12:56, 13:00, 12:59, 12:55, 12:45, 12:34, 12:48, 12:39, 12:59, 12:50, and 12:56. The interface is designed for easy navigation and control of smart home devices.

# Browser GUI (ESS Client): SmartHouse Remote Control

chrome://essclient - ESS Client - Mozilla Firefox

Navigation: << Birou 65 Birou 61 Video Axis Event log >>

IBS Intelligent Building SOLUTIONS

Logout

Camera Usa Sefu REC

Camera 63 REC

Camera Usa Barni REC

Camera Balcon REC

Control Panel:

- Navigation: ^, <, >, v
- Zoom: < Zoom >
- Focus: < Focus >
- Iris: < Iris >

Video camera

Name: Camera\_Balcon  
Peer: Camera\_balcon  
Click on the camera icon to maximize!

Connection status: ■ ■ ■

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Windows Taskbar: Start, Inbox - Mozilla Thunderbird, bs ESS Qt Client - Version 3..., Mozilla Firefox Startside ..., chrome://essclient - ..., Microsoft PowerPoint - [I...]

System Tray: 06:41 torsdag



# ESS Temperature History

The screenshot displays the ESS Client interface in a browser window. The main window has a navigation bar with buttons for 'Birou 65', 'Birou 61', 'Video' (highlighted), 'Axis', and 'Event log'. Below this, there are two camera feeds: 'Camera Usa Sefu' and 'Camera 63'. A smaller window titled 'ESS Qt Client - Version 3.0.1.0' is overlaid, showing a 'History' tab with a line graph of temperature over time. The graph shows a red line fluctuating between 24°C and 28°C. A 'Cancel' button and 'Can Temp Reg' text are visible next to the graph. The interface also includes a 'Logout' button and a 'Video camera' section with details for 'Camera Balcon'.

Browser address bar: chrome://essclient - ESS Client - Mozilla Firefox

Navigation bar: << Birou 65 Birou 61 Video Axis Event log >>

Camera feeds: Camera Usa Sefu, Camera 63

ESS Qt Client - Version 3.0.1.0

ESS Qt Client Navigation: << Welcome Main Form Log History >>

Graph: Temperature (°C) vs. time (tmp)

Graph Data (Approximate):

| Time (tmp) | Temperature (°C) |
|------------|------------------|
| 0          | 25.0             |
| 1          | 26.0             |
| 2          | 27.0             |
| 3          | 28.0             |
| 4          | 24.0             |
| 5          | 25.0             |
| 6          | 26.0             |
| 7          | 26.0             |
| 8          | 26.0             |
| 9          | 26.0             |
| 10         | 26.0             |

Buttons: Cancel, Can Temp Reg

Video camera section: Name: Camera Balcon, Peer: Camera\_balcon

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Taskbar: Start, Inbox - Mozilla Thunderbird, chrome://essclient - ESS ..., Microsoft PowerPoint - [...], ESS Qt Client - Versio...

System tray: 06:47, torsdag