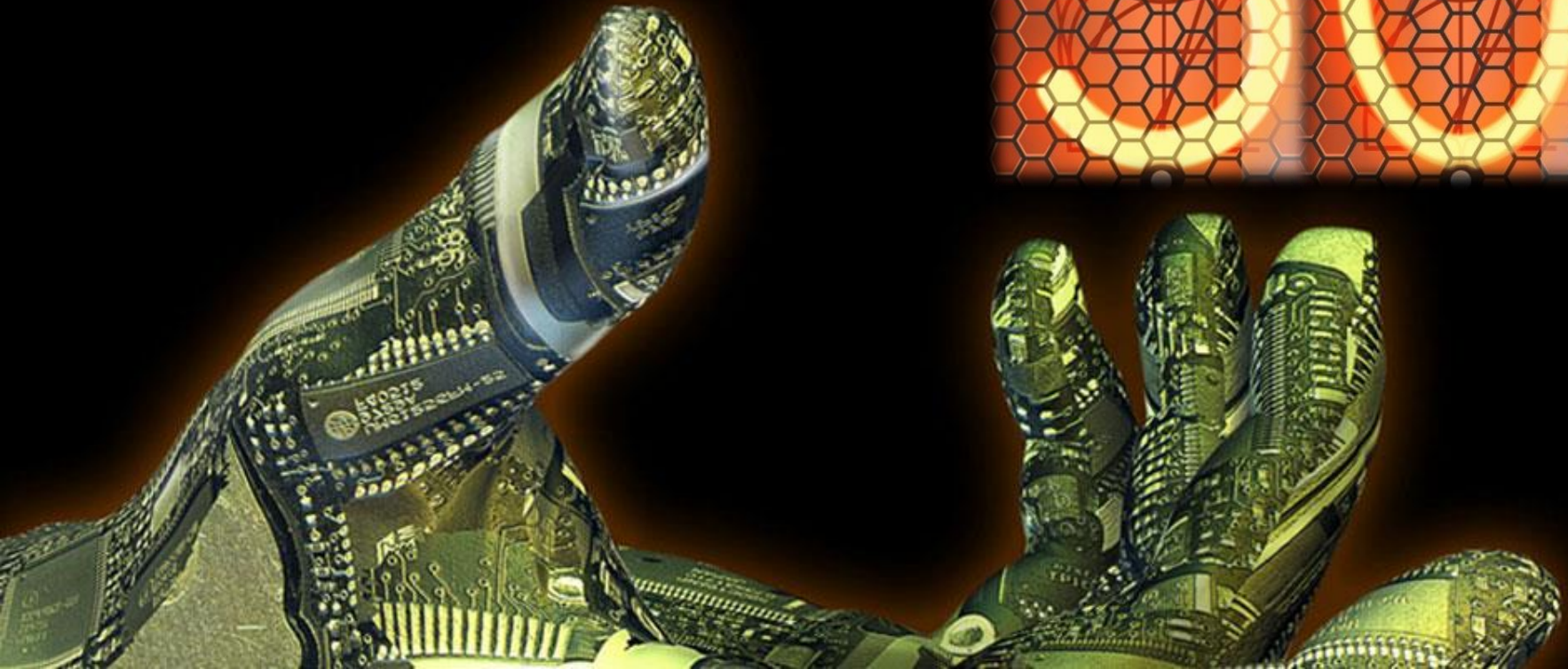
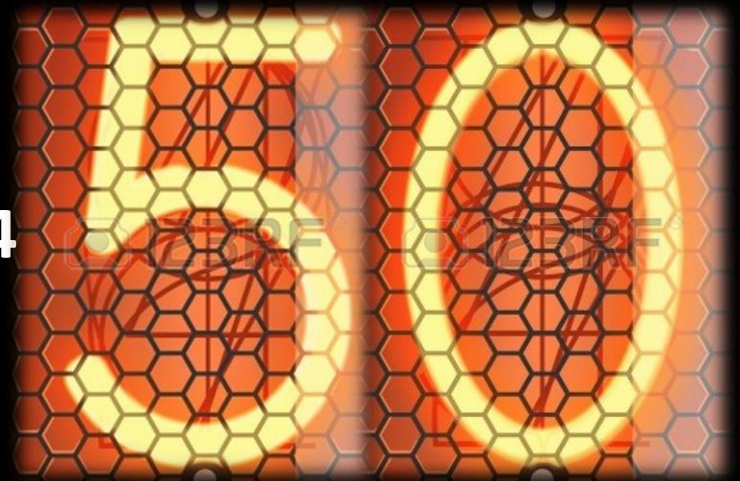


# System Architecture Study Group

50<sup>th</sup> meeting - February 4<sup>th</sup> 2014



# System Architecture Study Group

- In the beginning.....



**PHILIPS CFT**

Centre for Industrial Technology

## System Architecture Study Group

- And there was the SASG
- Originally a Philips initiative, for a (software) architect get together
- Called the Operating Systems Study Group
- The first meeting was at Philips Electron Optics in September 1997
- Very soon other companies in the Eindhoven area were invited to participate (ASML, OCE).
- After a few more years Philips activities were divested, closed, moved, another approach was needed.

## System Architecture Study Group

- The SASG was moved to the Embedded Systems Institute (now TNO)
  - A logical point as one of the central high tech meeting points in the region
- Yet set-up and structure did not change
  - An informal get together around one topic, three times a year.
- The numbers of participating companies and members grew
  - SASG is now an active group of about 200 system architects.

## The 50<sup>th</sup> meeting, time to look back (once)

- What did we do
  - Overview of meetings, places, people, presentations
  - What can we say on topics did we change
  - Did architecture change and how
  - Looking forward

## Meetings

- 50 meetings, many places, always at members premises
  - 3 times a year, first Tuesday in February, June, October
- Always following a standard scheme
  - Welcome by organizing member
  - 4 presentations
  - Break-out sessions
  - Guided tour









# Meetings

- Do we see trends?
  - Yes there are technology and method hypes
  - Components/com in 1999, model based from 2007 onwards
  - However some topics stay on the agenda: 2000 exception handling, 2007 fault tolerance.
  - Sometimes we have second thoughts: 2011: the corset of reuse
  - From very software oriented to broader system architecting

## Members

By 2000 there were about 60 SASG members

- FEI
- Philips (CE, HI, DAP, CFT, EMT, PMS, Semi)
- Nyquist
- ASM-L

Now we have around 200 members

Mainly from the South-eastern part of Brabant

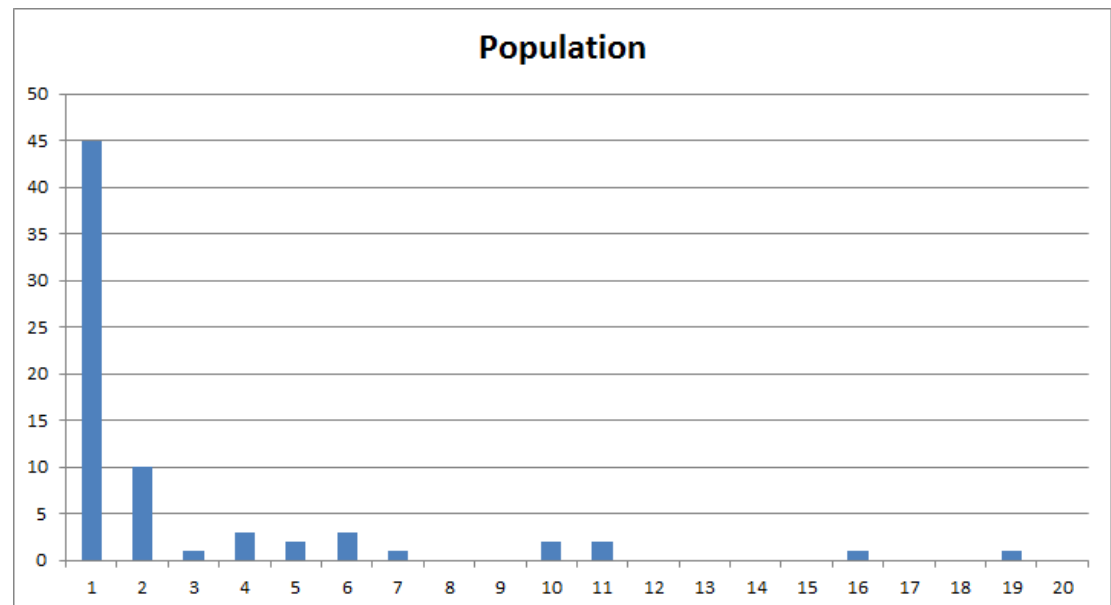
But also from Hengelo, Drachten, Almelo, Leiden, ...





## Members

- About 70 different “companies”
  - Yet quite a number of private persons amongst these
- A short list of large member companies
  - Philips (Healthcare, Lighting, Consumer, Research, Pins) 48
  - ASML 16
  - OCE 11
  - FEI 10
  - NXP 7
  - TNO 6
  - Nspyre 6
  - Panalytical 6
  - Sioux 5
  - VanderLande 5



# Presentations

## Execution Architecture of a Real-Time system

Dr. A.P. Kostelijk  
Ing. B. Smets



Ton Kostelijk

1



## Eliminating Waste: How To Make Testing Lean

Mark Robinson  
Tuesday 2 June 2009



Quality-growth and  
communication

ton.kostelijk@philips.com



## Configuration challenges at ITEC

Wiljan Derks, Jorg van Daelen

30 jan 2007



# PHILIPS

## Performance X-ray systems

Jo Peters

Philips Medical Systems; X-ray C/V  
7/2/2006

logicaCMG

## From Requirements to Architecture: Functional and Other Aspects

Eltjo Poort, LogicaCMG  
(Peter de With, TU/e + LogicaCMG)

Requirements to Architecture SASO

October 4, 2005 1



## Presentation Titles



# Presentations



**FEI™**  
The Structural Process Management Company

**The Fei Koala Architecture**  
& why we hope it is future proof




**Incremental functionality**  
*Visitor as an Architectural Pattern*

**Eddie.Szulc@Sioux.nl**

**Microsoft .NET**


A radical new approach to software usage, deployment and development?

Leon van Snippenberg  
Atos Origin / IPS  
e-mail: Leon.vanSnippenberg@atosorigin.com



**Codegeneratie voor FPGAs**  
Herman Roebbers  
TASS

Onderwerp: Code generatie voor FPGAs  
Datum: 4 Oktober 2011  
Aanwezigen: System Architecture Study Group  
Classificatie: Copyright TASS 2011



Flanders' MECHATRONICS Technology Centre  
www.fmfc.be

**Remote diagnostics and optimization of the machine maintenance service**

SASG meeting October 7, 2008  
Steve Vandenplas, program manager

FMTC • Celestijnenlaan 300 D • B-3001 Leuven • Belgium •  
Tel: +32-16-32.80.50 • Fax: +32-16-32.80.64 • Email: info@fmfc.be

STRICTLY CONFIDENTIAL



**ASML**

**REQUIREMENTS/SPECIFICATIONS**  
[www.requirementsassistant.nl](http://www.requirementsassistant.nl)

Herman Driessen  
SASG  
5 Oktober 2004

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## Presenters

- 50 meetings more than 200 presentations.
- Arranged by members often presented by members
- Thank you very much....
- And of course there are serial presenters....

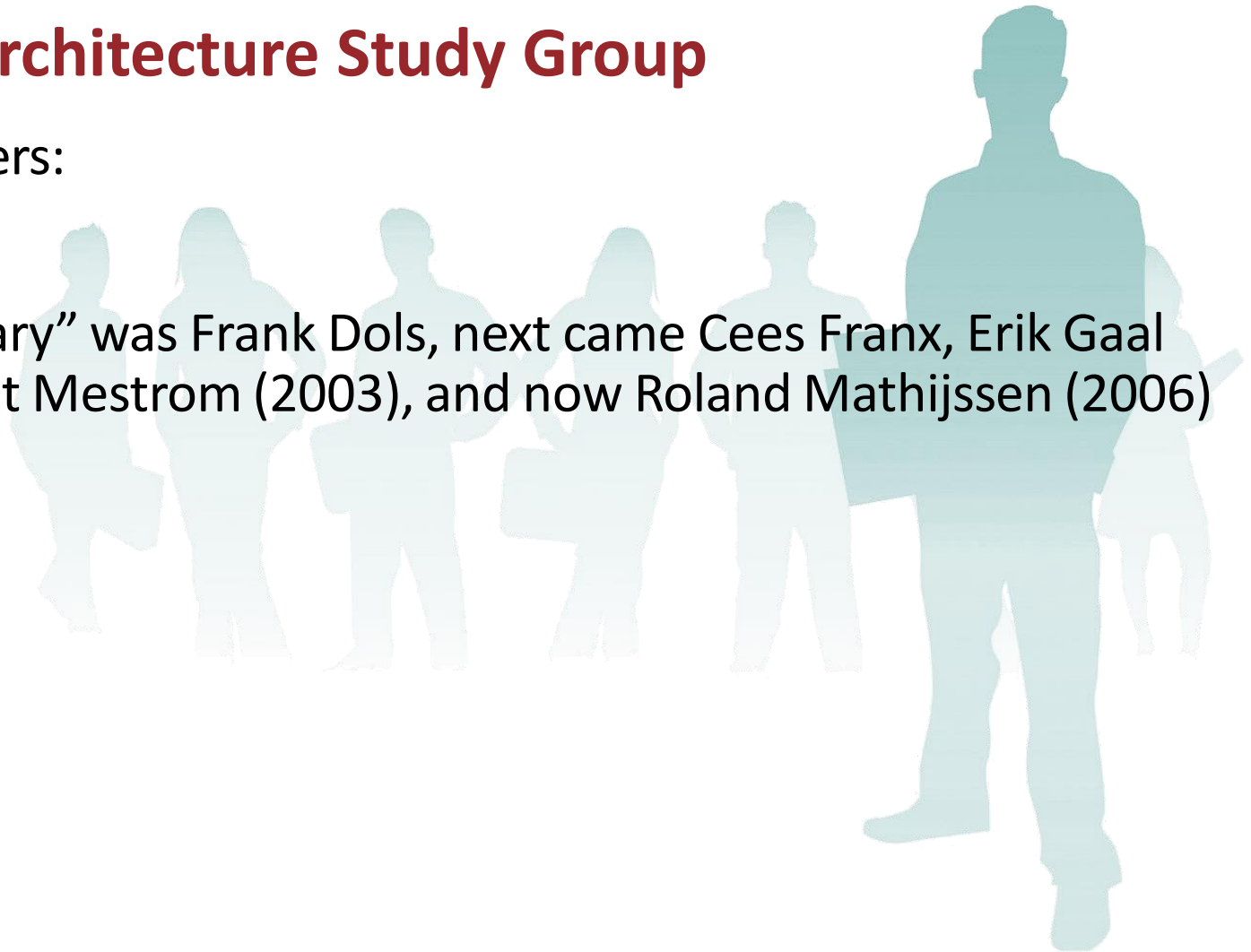
## Presenters

- 3 presentations:
  - Gerrit Muller, Hans van Leunen, Paul Thijssen, Dieter Hammer
- 4 presentations:
  - Frank van der Berk, Wiljan Derks, Ton Kostelijk, Rick van Lierop
- 6 presentations:
  - Ben Pronk
- 7 presentations
  - Auke van Balen

# System Architecture Study Group

The Organizers:

First “secretary” was Frank Dols, next came Cees Franx, Erik Gaal (2000), Anget Mestrom (2003), and now Roland Mathijssen (2006)





## Did we change

- Did system architecture change



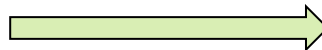
## Did system architecture change

- As it was:
  - Products were “simple”
  - Centered around a single dominant technology
  - With a “single” function
  - Limited user interface
- The system architect was:
  - A domain expert
  - Eloquent in the dominant technology



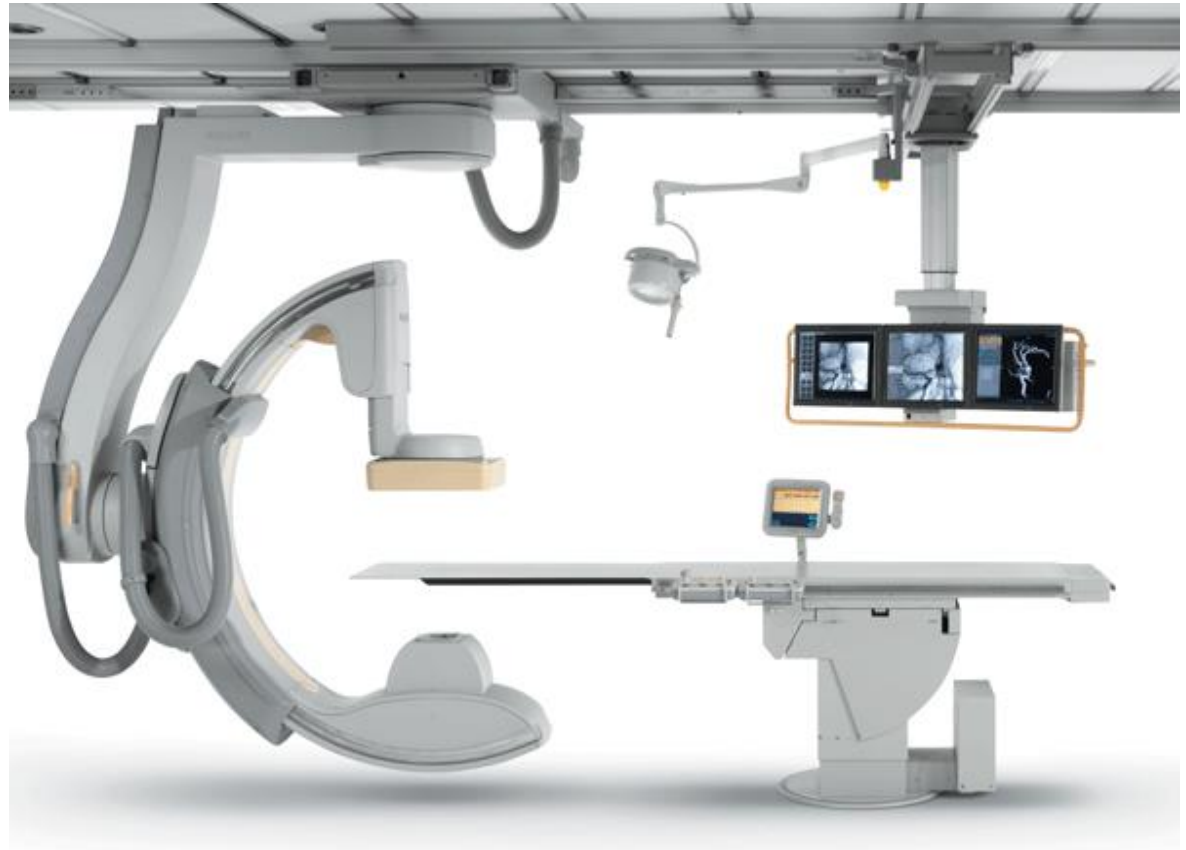
## Did system architecture change

- And then:
  - Software control and UI entered products
  - Components of the system became islands of automation
  - Software became a serious discipline, the software content of products increased rapidly, following Moore's law..



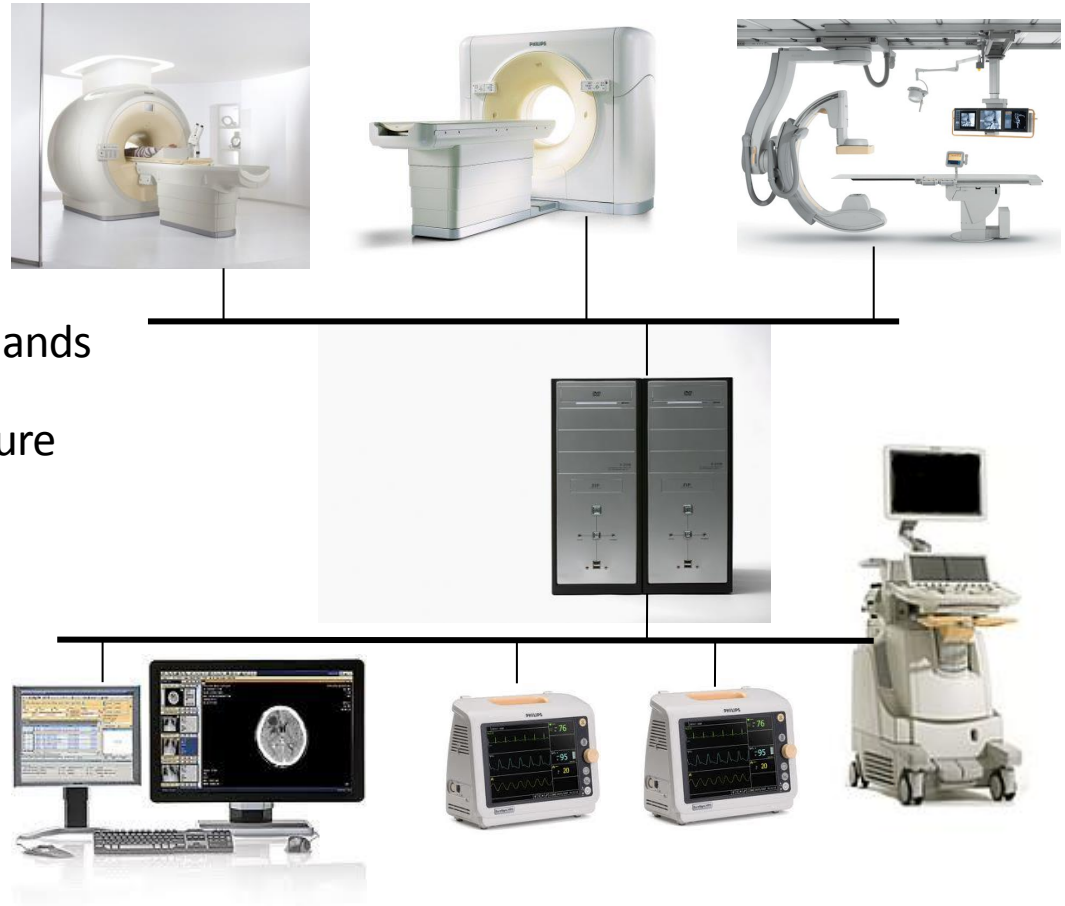
## Did system architecture change

- And then:
- The islands were bridged
- The system became fully integrated
- With new unseen functionality
- Combining many technologies
- And millions of lines of software



## Did system architecture change

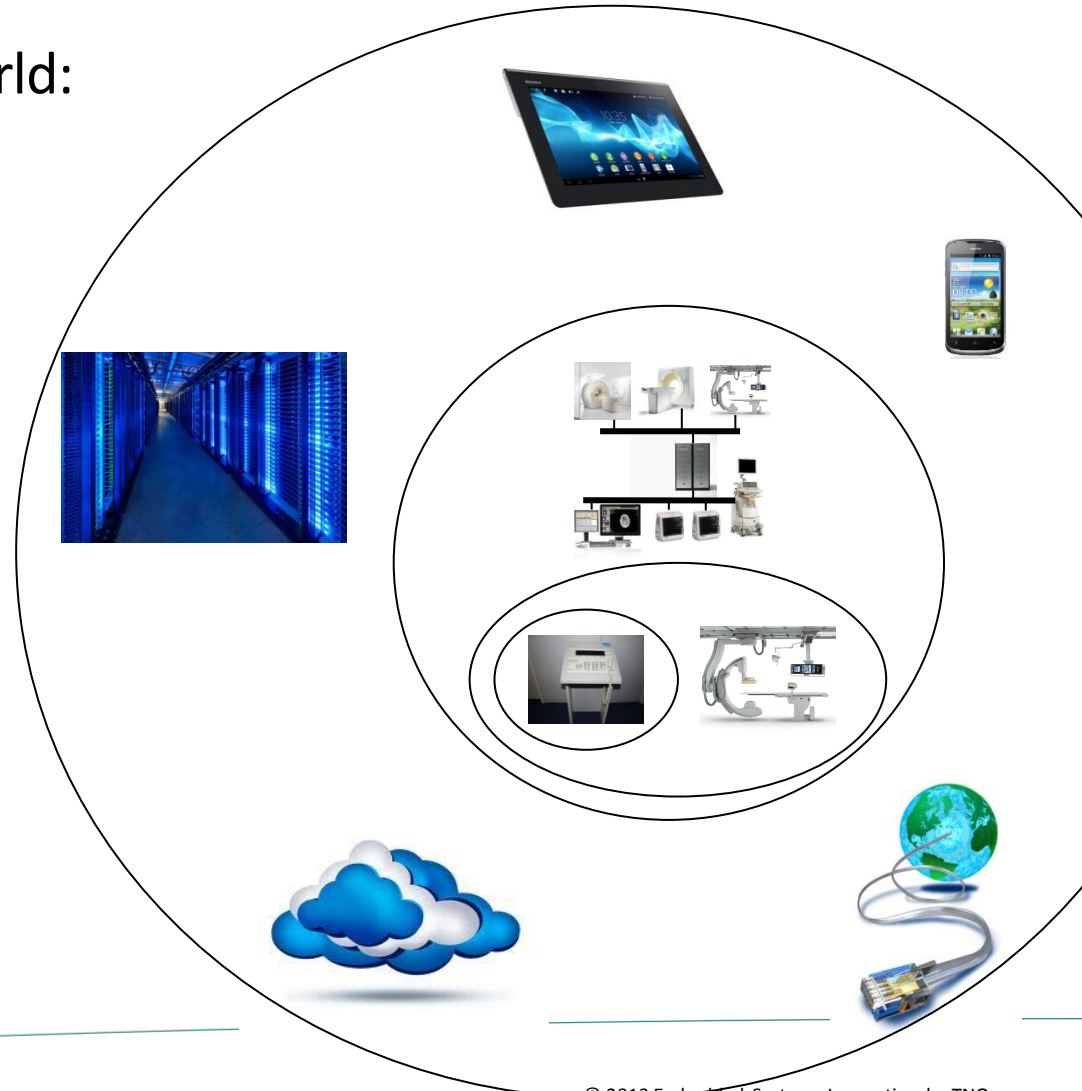
- The systems became connected, at first similar systems then everything.
- single vendor and multi-vendor
- Able to exchange data and commands
- Connected to hospital infrastructure and central servers
- Networking, protocols, security, privacy and lifecycles became part of the scope of system architecture.





# Did system architecture change

- We get connected to the world:
  - Mobile devices, nearby and away
  - The back-office, remote service
  - The internet
  - The cloud
  - Telecom networks
  - Etc.
- And again complexity grows
  - New technologies
  - New domains



## Did the System Architect Change

- The system architect evolved with system architecture
  - More generalist than specialist, has global knowledge of all involved technologies and the market.
  - Able to oversee the architecture and developments, goes into details where and when needed
  - Involved in the entire development cycle: specification, architecture, integration, verification and validation.
  - Works closely together with PM and marketing

## Looking forward

- Are we there, let's look at the trends?
  - The world is becoming a faster place, speed is becoming more and more a competitive edge.
  - We need the latest technology (performance, cost level and features) now.
  - Lifecycles are getting shorter, software content and functionality is still growing fast
- As a result:
  - Diminishing returns: saturating market shares and increasing investments in new products with shorter lifecycles
  - The consumer domain has already seen these struggles

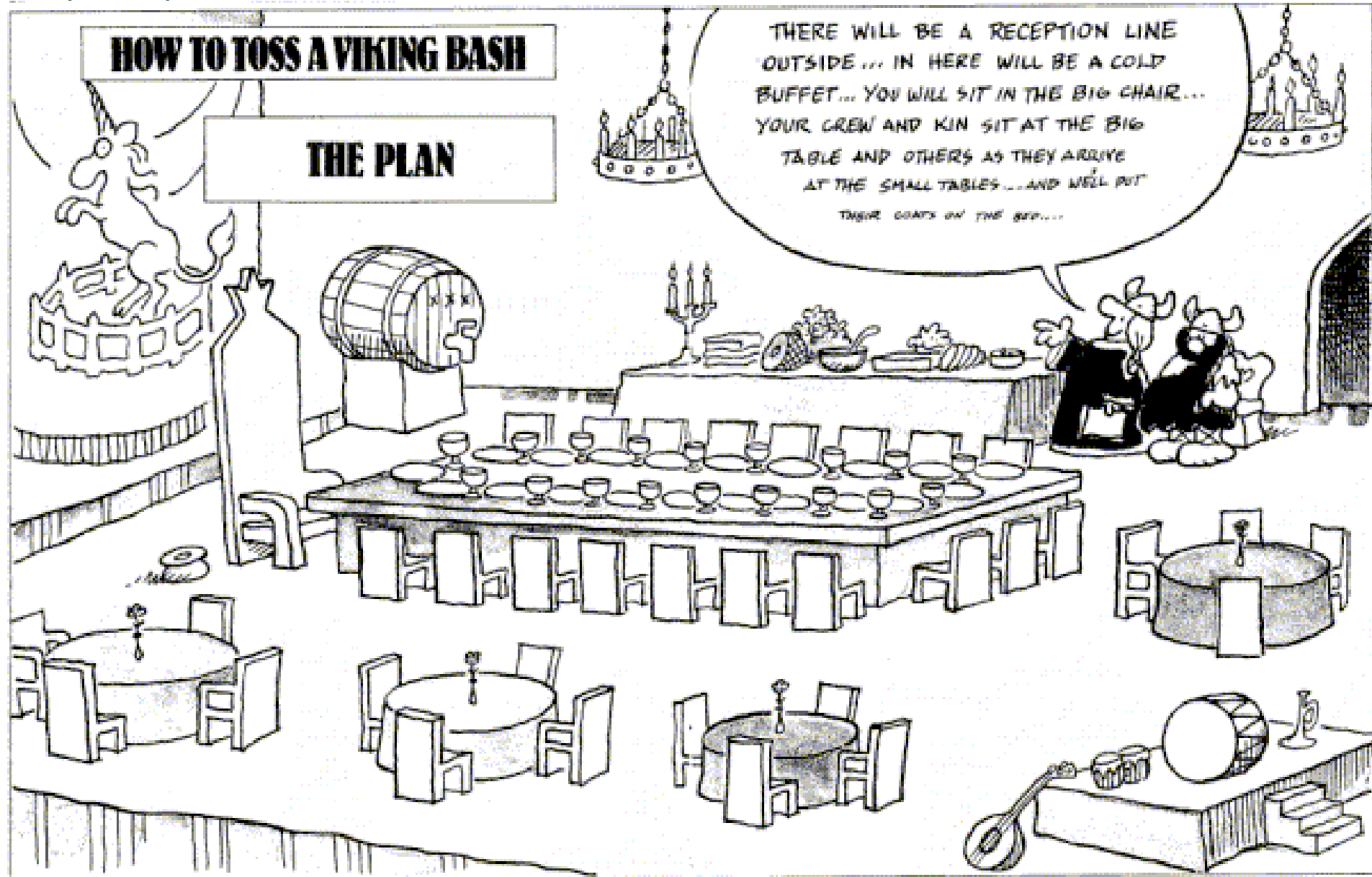
## Looking forward

- Complexity of our products is still growing:
  - More integration and more functionality
  - The number of technologies embedded is expanding ever further
  - The software content closely follows Moore's law
- And the R&D-environment becomes more challenging
  - Standards and technologies to be followed and incorporated
  - Integration becomes the key activity
  - No way of doing, owning everything yourself
  - More parts to be outsourced, make vs. buy, ODM involved
  - Open Source to be adopted
  - Partnerships, licenses and other cooperation's to be managed

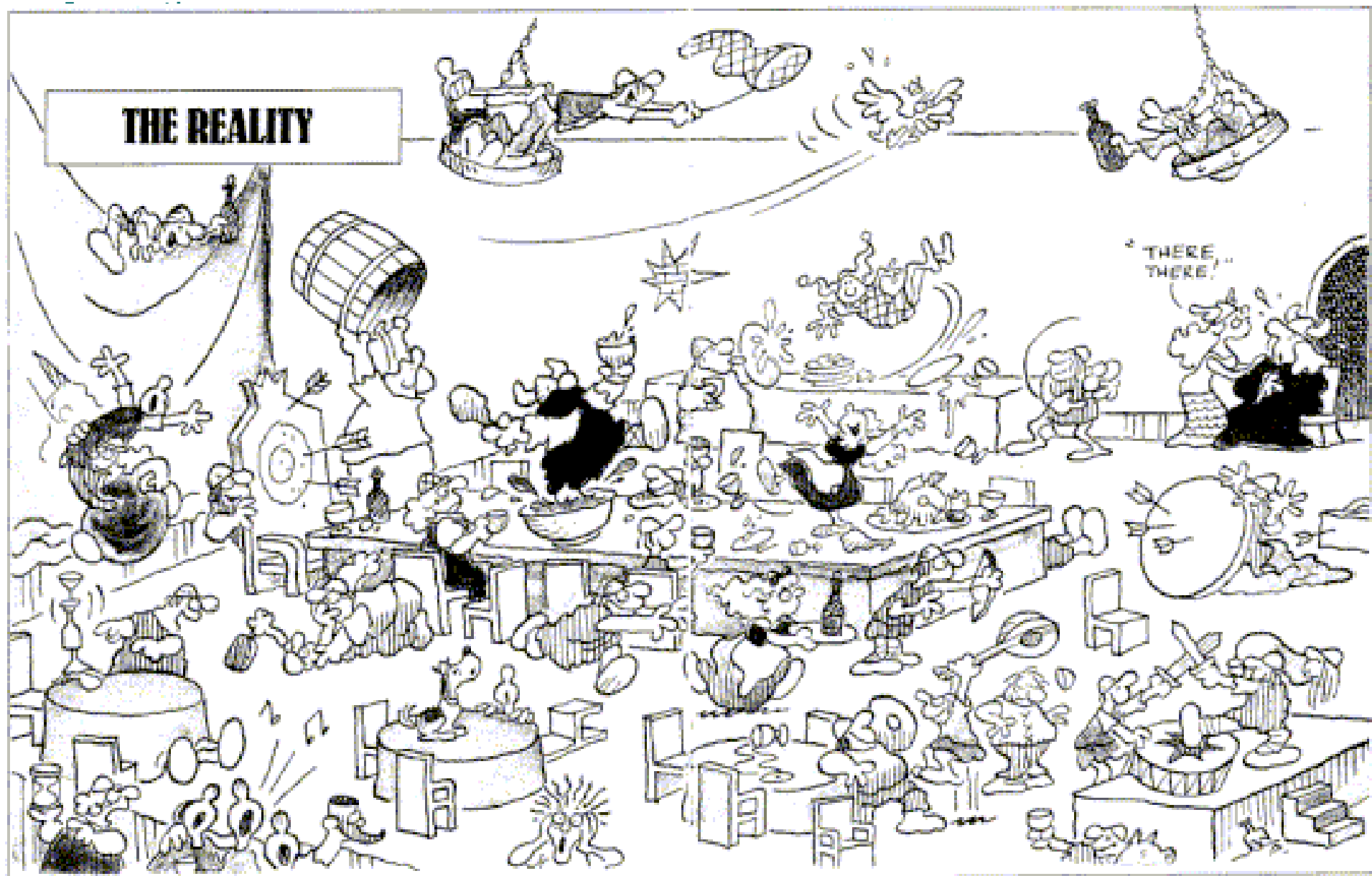
# HOW TO TOSS A VIKING BASH

## THE PLAN

THERE WILL BE A RECEPTION LINE  
OUTSIDE... IN HERE WILL BE A COLD  
BUFFET... YOU WILL SIT IN THE BIG CHAIR...  
YOUR CREW AND KIN SIT AT THE BIG  
TABLE AND OTHERS AS THEY ARRIVE  
AT THE SMALL TABLES...AND WE'LL PUT  
THEIR COATS ON THE BEE...



## THE REALITY



## Poster session – part 1

- Outside are the posters
- Also empty flip-overs and pens are present, in case you want to share your input and experiences
- Discuss the poster with the person who created the poster, or who is also reading the poster
- Give feedback on yellow sticky notes, but do not attach them yet
- Write 1 or 2 questions / remarks per poster
- Attach the sticky after 15 minutes





## Poster session – part 2

- Positive Feedback: I like *this and this*, because *so and so*
- Negative Feedback: Make it constructive, Formulate as a question  
e.g. You state *this and this*, how to ... / where have you ... / ...
- *Steal* good ideas from others  
and write them on a  
yellow sticky
- Create your own flip  
with *good ideas*



## Poster session – part 3

- Capture what you want to discuss in a question
- Write on a sticky note
- Discuss these questions in the afternoon

