# “Web Services Will Succeed Where CORBA Failed” True, False Or Irrelevant?

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OMG Technical Meeting

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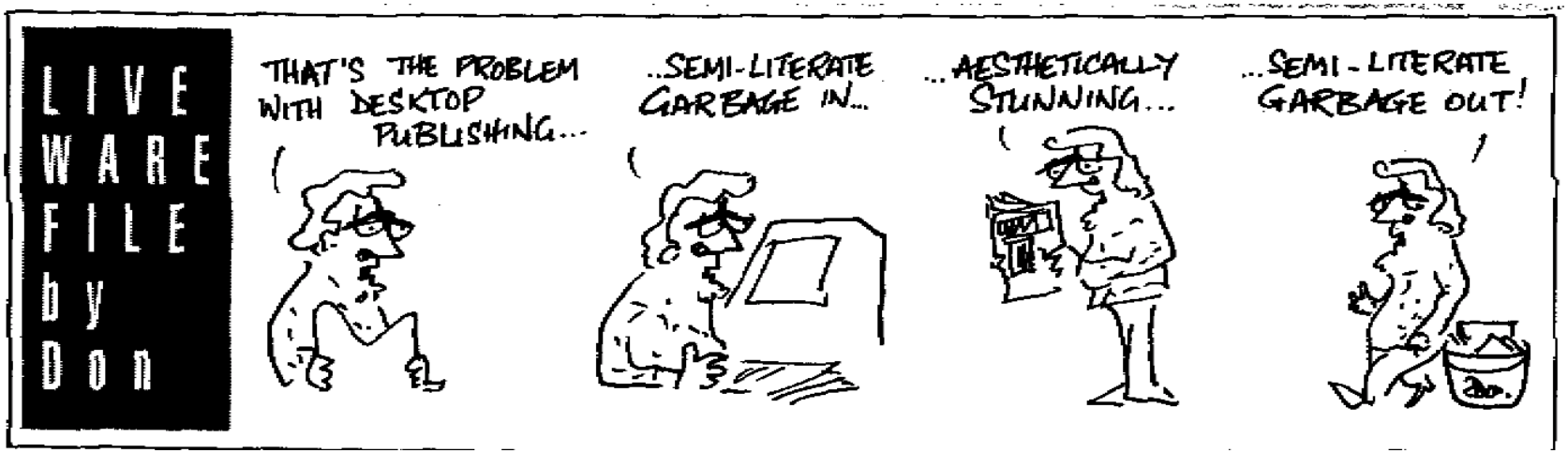
# Who Is This Guy, Anyway?

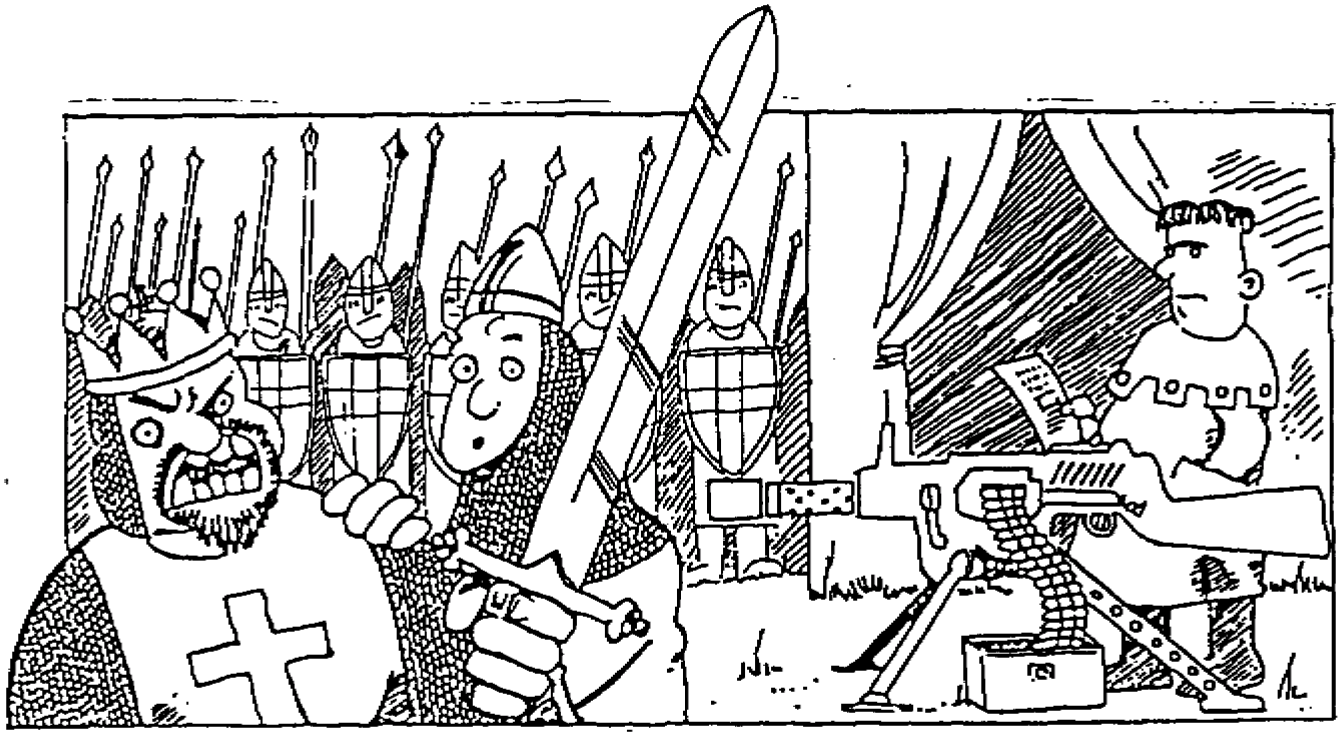
- Freelance software analyst/consultant
  - Cutter Consortium
    - www.cutter.com
  - ComputerWire
    - www.computerwire.info
  - MiddlewareSpectra
    - www.middlewarespectra.com
- Digital Equipment Corp
  - Tech support, presales, consulting, marketing
  - Software engineering, middleware

# There Is More To Life Than An Attractive User Interface



# Agenda

- Innovation And Progress In IT
- “CORBA Failed”
- “Web Services Will Succeed”
- Where Next?
- What Could We Do Better?
- Conclusions

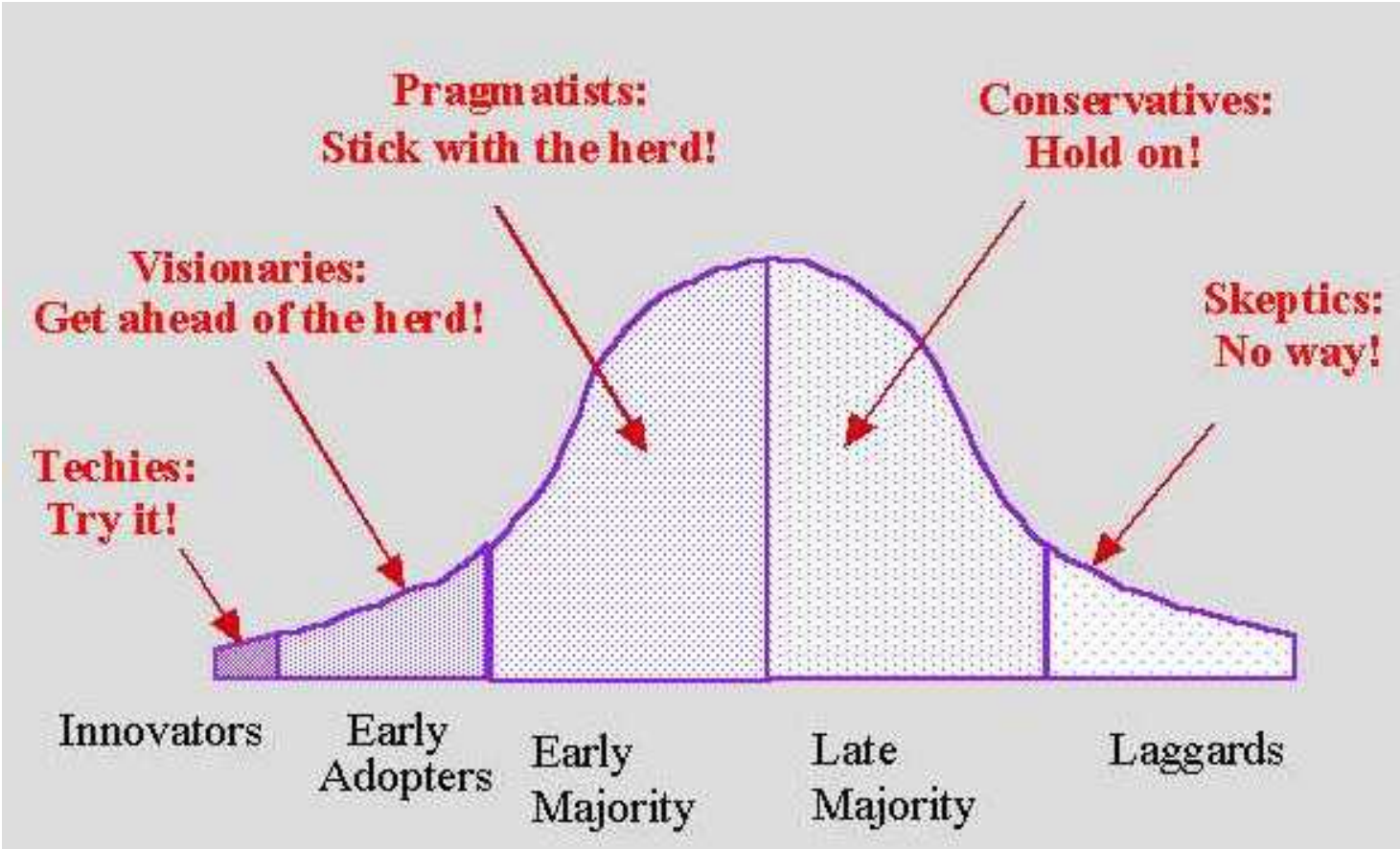


"No, I haven't got time to see any crazy development engineers, we've got a battle to fight"

# Innovation And Progress In IT

- State of practice is the resultant of
  - perceived needs...
  - ...partially satisfied by state-of-the-art technology...
  - ...under influence of media, analysts, “culture”
- Experts almost always over-optimistic
  - Babbage was an extreme case
  - *Megamistakes*, Steven P Schnaars
    - Start small, take lots of tries
    - Most systems are counterintuitive (i.e. too hard for us)

# Technology Adoption Life Cycle



# Innovation And Progress In IT

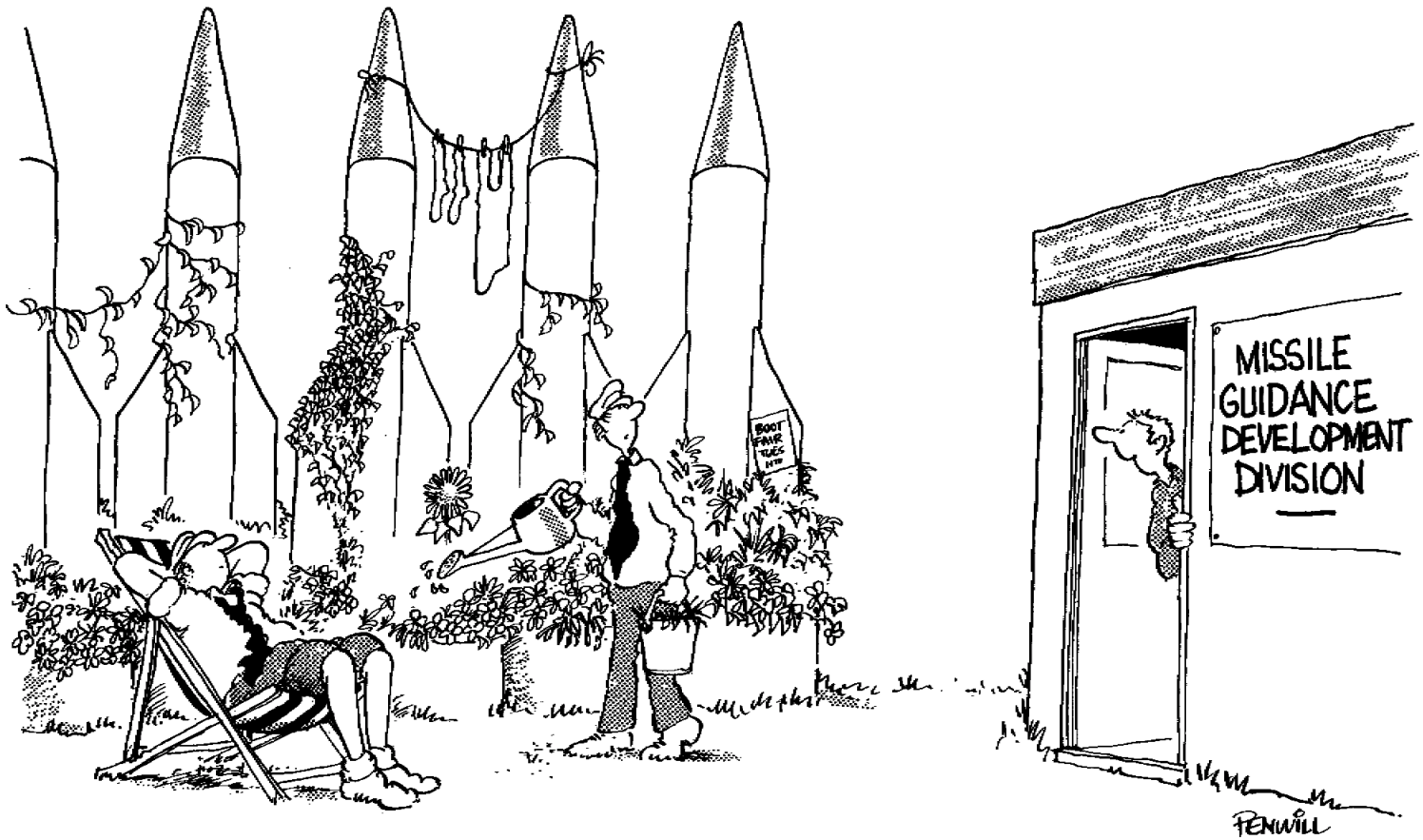
- The software industry has always reused ideas
  - Like Stanley Miller's "organic soup"
- Consider the Web…
  - Precondition 1: ARPAnet, alias the Internet
  - Precondition 2: Graphics workstations (PARC)
  - Precondition 3: Hypertext (Bush, Nelson, etc.)
  - Precondition 4: SGML
- Now consider using the Web programmatically!
  - "No, but this is where the light is"

# “CORBA Failed”

- Why would anyone say that CORBA failed?
  - Tried to learn it and gave up
  - Expected too much
  - Impatient
  - Too expensive at the margin
  - Nobody likes a committee
  - Analysts looking for contrast
  - Journalists doubling their mileage
- Back-handed compliment (like being “legacy”)

# “CORBA Failed”

- Plenty of CORBA products
  - 5-6 general purpose commercial ORBs
  - Several realtime, embedded ORBs
  - 20-30 free ORBs
  - Object Transaction Managers (OTMs)
  - CORBA Component Model (CCM)
  - J2EE/EJB application servers
- Not much profit in vanilla ORBs
  - PrismTech model: free ORBs + CORBAservices




" NOT LONG NOW CHAPS "

# “CORBA Failed”

- CORBA has gone underground within Java
  - J2SE
    - RMI-IIOP, JavaIDL
    - GIOP, POA, Interceptors, INS (J2SE 1.4)
  - EJB
    - Containers must support RMI-IIOP invocations, INS
    - JTS includes a Java mapping of OTS
    - CSIv2 Level 0, IIOP/SSL
  - J2EE
    - JTS, JNDI, JMS interoperable with CORBA

# “CORBA Failed”

- No hard figures for successful projects
  - Never a mass-market product
  - Tens of thousands of licences sold (not millions)
  - Relatively small part of big projects
- After ten years, just maturing nicely…
  - CORBA 3 specifications being implemented
  - Design patterns understood
  - CORBA adapting to various ecological niches

# “CORBA Failed”

- Over 1,000 organizations using CORBA, e.g.
  - CNN Interactive
  - American Airlines
  - Hong Kong Telecom
  - Charles Schwab
  - Port of Singapore
  - McKesson
  - Boeing
  - Wells Fargo

# “CORBA Failed”

- OMG Process
  - As great an achievement as any specification
  - Arguably the best blend of standards and enterprise
- Multiple Feedback Loops
  - Application fails? Get training, mentor
  - Product fails? Call vendor
  - Specification inadequate? Revise at OMG
  - Process weak? Modify OMG process
- “Use standards as a ratchet” (Deming)

# “CORBA Failed”

- Strengths
  - Open, vendor-neutral standard
  - Platform, language, location transparency
  - Compatible with J2EE
  - Wide range of implementations
- Weaknesses
  - Complexity, cost unjustified for simple problems
  - Practically no validation
  - Unfashionable

# “Web Services Will Succeed”

- “URL-addressable resources that programmatically return results to clients”
  - Letting applications act like Web browsers
- Shift in thinking about remote communication
  - No need to conform to rigid interface (API)
  - Send XML message and let the receiver parse it
  - Contracts published in standard format
  - Relatively low-tech, ubiquitous, hard to break
  - Defeats firewalls by passing through port 80

# “Web Services Will Succeed”

- Stone Soup
  - With everyone working on it, success is assured
  - It  may take some time
- Convergent motives
  - For Microsoft, an alternative to Java everywhere
  - For IBM, a differentiator against Sun, etc.
  - For developers, blissful simplicity (perhaps)
    - RPC through firewalls (port 80)
    - “Test” by exposing services on the Internet

# Web Services Marketplace

# “Web Services Will Succeed”

- Myriad products
  - Microsoft .Net = DNA 2000 + Web services (roughly)
  - Apache XML-SOAP
  - IBM WebSphere Application Developer, alphaWorks
  - Cape Clear
  - Bowstreet
  - J2EE vendors…
  - EAI vendors…
  - Many free and low-cost packages

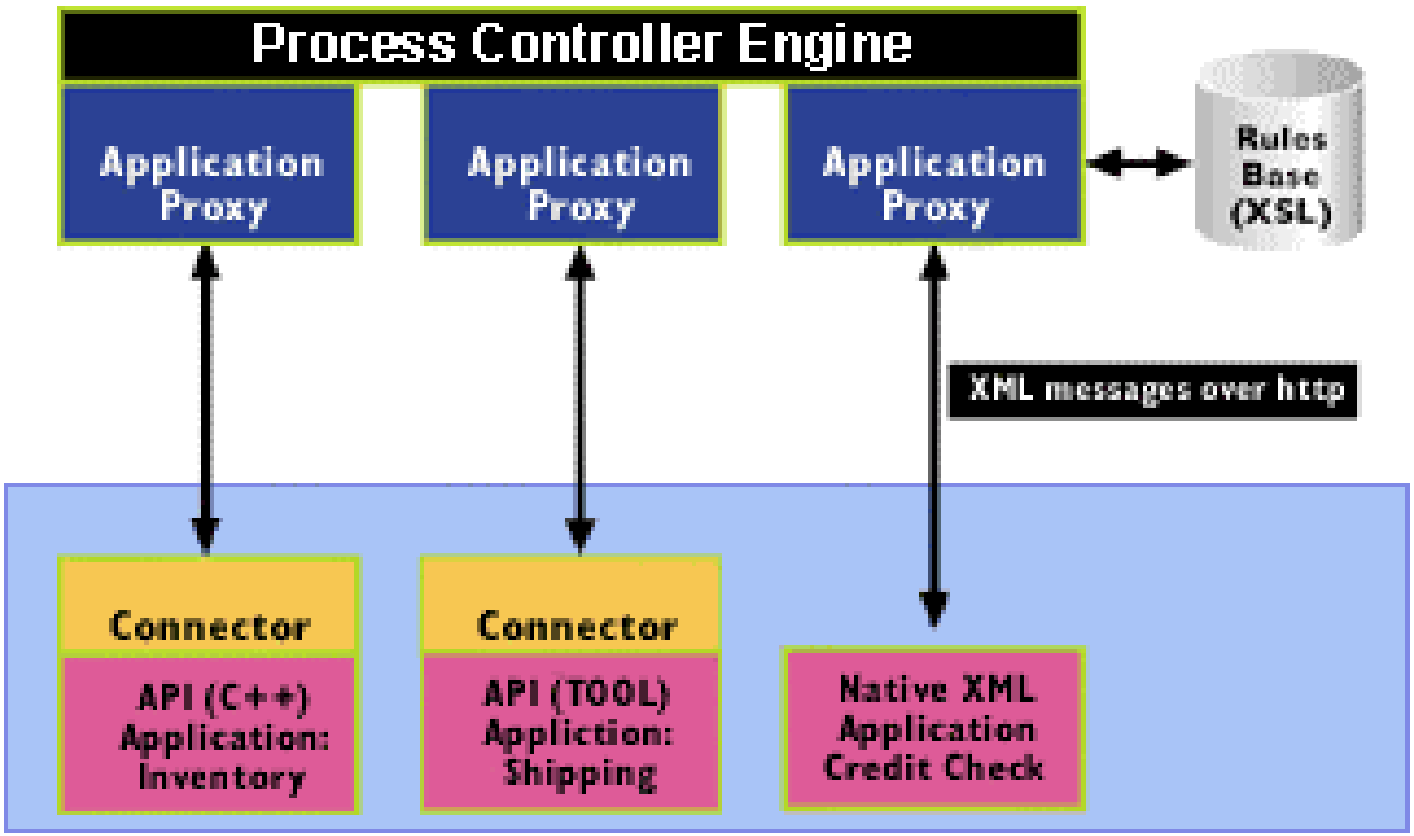
# “Web Services Will Succeed”

- Three core standards
  - SOAP, WSDL, UDDI
- Others agreed by IBM, Microsoft
  - WS-Inspection, WS-Security (+ 6 related standards)
- Essentially de-facto
  - W3C working to enhance SOAP
- Many associated specifications being advanced
  - HTTPR (IBM), WSCL (HP)...

# “Web Services Will Succeed”

- Two workflow languages
  - IBM’s Web Services Flow Language (WSFL)
  - Microsoft’s XLANG
- IBM’s Web Services Endpoint Language (WSEL)
  - *“I’m a bank. I can respond in less than 5 seconds”*
- Pending Microsoft candidates
  - WS-Referral, WS-Routing, WS-License
- Distributed transaction management
  - “Dependency spheres” model proposed by IBM

# Web Services and EAI



# “Web Services Will Succeed”

- ebXML
  - Electronic Business XML (from OASIS)
  - Universal language for B2B
  - One of many possible uses for Web Services
- BPML
  - Business Process Management Language
  - From BPMI.org
  - Control and data flow constructs for transactions

# “Web Services Will Succeed”

- Java community sees XML as complementary
  - Java for algorithms, communications
  - XML as a universal data interchange format
- JCP has multiple JSRs relating to XML
  - JAXP, JAX-RPC, JAXM, JAXR
  - J2EE + Web Services Developer Pack
  - Will all be included in J2EE 1.4
- Only for interoperation outside Java world
  - JMS, RMI, RMI/IIOP between Java applications

# “Web Services Will Succeed”

- Web Services Interoperability Organization
  - Set up in February 2002
  - BEA, IBM, Microsoft, Oracle, SAP, etc.
  - Sun has still not joined (Why not?)
- Explicitly not responsible for creating standards
- Three main goals
  - Provide implementation guidance, education about WS
  - Promote consistent and reliable interoperability
  - Articulate/promote a common WS vision

# “Web Services Will Succeed”

- Risks and pitfalls
  - Performance
  - Integrity
  - Security
  - Shared vocabularies (ontology)
  - Functional, not object-oriented
  - Configuration management
  - Ownership

# “Web Services Will Succeed”

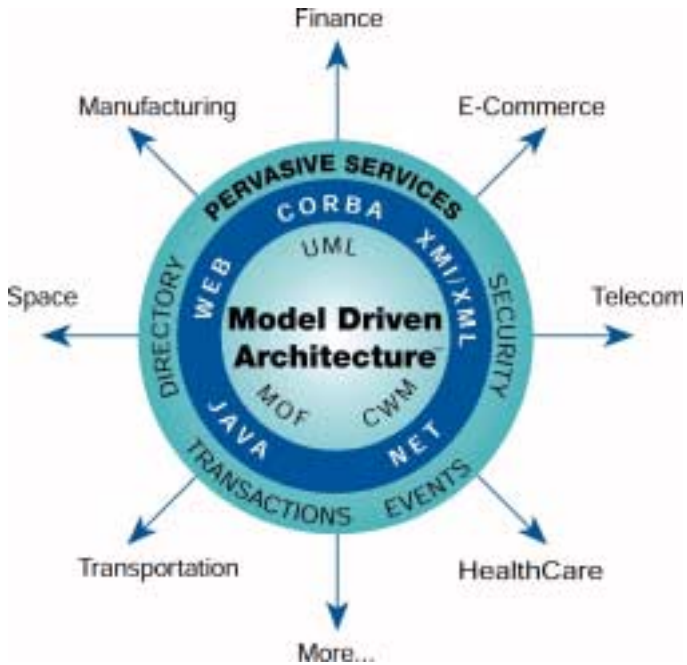
- Strengths
  - Backed by IBM and Microsoft
  - Perceived as cheaper, easier, more flexible
  - Associated with Semantic Web, .Net vision
- Weaknesses
  - Barely specified as yet
  - Inferior to CORBA, RMI, JMS for existing roles
  - Process dominated by competitive factions
  - Overpromised

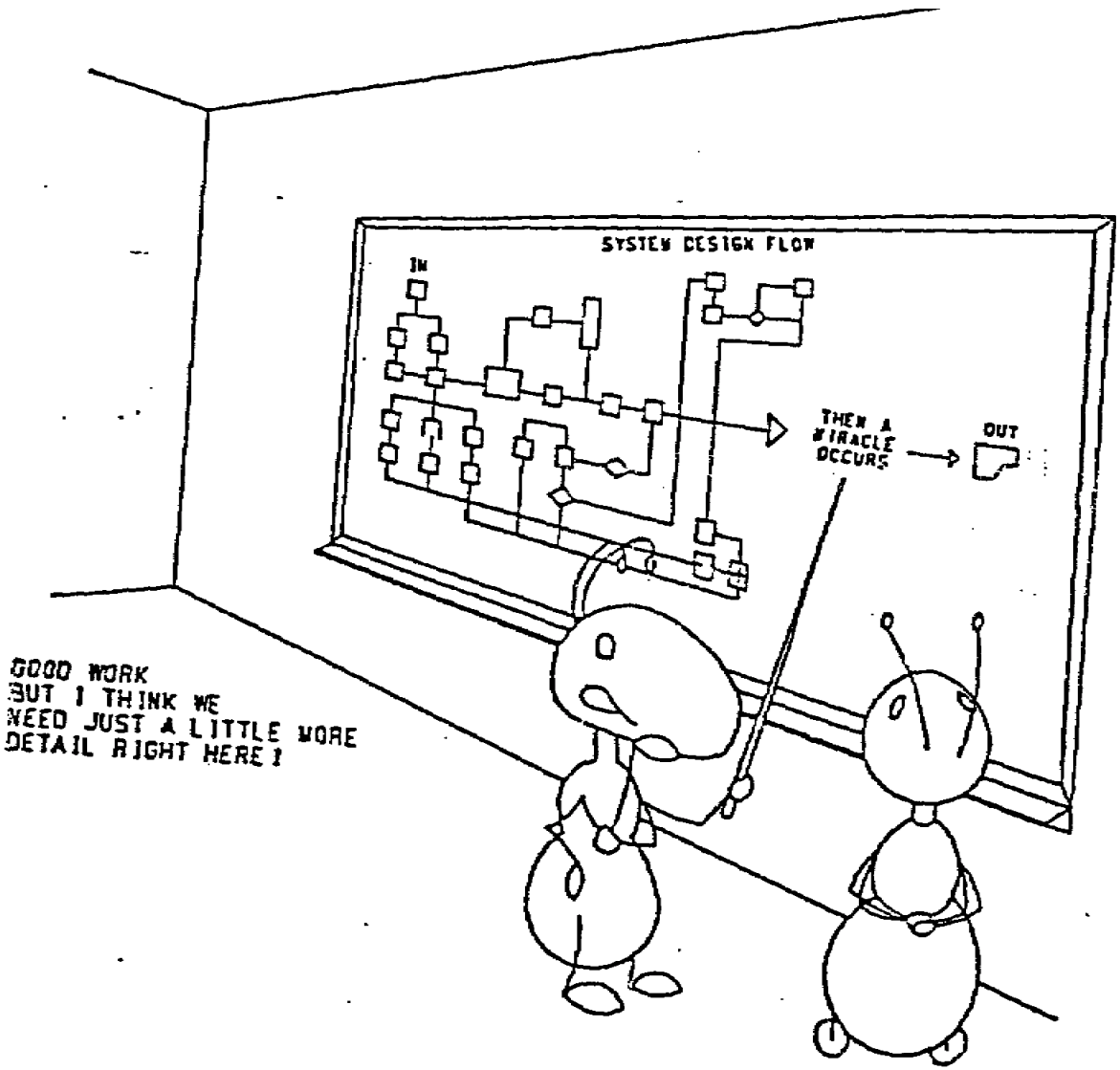
# Where Next?

- We have several viable application server models
  - Java (J2EE, EJB, servlets…)
  - .Net
  - CCM
  - LAMP (Linux, Apache, MySQL, Perl/PHP/Python)
- These can interoperate by Web services (inter alia)
- All may continue to coexist
  - More choice
  - More competition

# Where Next?

- Platform choice committal…
  - …unless MDA adopted
- Design PIM once
- Refine to PSMs for
  - CORBA
  - J2EE
  - .Net
  - Web services
- Platform choice becomes an implementation detail




SYSTEM DESIGN FLOW
IN
THEN A MIRACLE OCCURS
OUT
GOOD WORK
BUT I THINK WE
NEED JUST A LITTLE MORE
DETAIL RIGHT HERE!

# What Could We Do Better?

- Stop burying our failures
  - Possibly main reason for ongoing “software crisis”
- Openness is a prerequisite for progress
  - Scientific publication, peer review
  - Bridges, buildings, aircraft, etc.
  - Open source, open specifications…
  - …but secrecy about internal projects
- As at OMG, better to pool knowledge
  - Standardize what everyone is willing to share

# Conclusions

- CORBA did not fail
  - Many implementations
  - Multiple platforms, languages, rich services
  - Thousands of projects, many successful
  - A brick in the wall of progress
- Web services will succeed
  - But not in the same space as CORBA
  - Several years to cross the chasm
  - Far bigger problems to solve