



e-engineering

A disciplined approach to the web

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Prosumer
solutions



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Introduction

- **Richard M Marshall**
 - PhD (in Computer Science)
 - CTO of Prosumer Solutions
 - A founder of QSS and one of the original DOORS crew
 - Created the DOORS and DXL training material
- **Interests**
 - Making things happen
 - Helping do things well
 - Anything with large motors in it
- **Prosumer Solutions**
 - The core DOORS development team
 - Software to help non-technical people build website
 - Based in Edinburgh



The web is different

The web uniquely combines several disciplines:

- Publishing
 - Constant revision
 - Wide distribution
- Design
 - It has to be easy to use
 - It has to look good
- Engineering
 - It has to work
 - Failure is a PR disaster
- Service
 - Everything is visible to anyone
 - We're all in a service business

Forming new disciplines

- Web construction is a very new profession
- Even now it is still the “wild west”
- Where did these people come from?
 - Graphical design
 - Print media
 - Marketing
 - Light-weight software
 - Not to mention the catering industry...
- **Not from systems engineering!**

What makes a good website?

- It's got to look way cool
- It's got to use funky graphics
- More Flash! Intro page!
- It's got to put over our corporate branding
- It's got to be easy to use
- It's got to work with V2 browsers
- It's got to be secure
- I've got to be able to find what I want
- Don't make me think
- I want to find out about my account
- I want to get my job done quickly and easily

So, no consensus?

- Guess what - it's about requirements!
- Let's do some system engineering
- User types:
 - End users
 - Corporate
 - Marketing
 - Sales
 - IT
 - Graphical community
 - Press
- How many are valid?

Looking at end users

- Web end users come in several grades:
 - “Drive by” users
 - Information researchers
 - Purchasers
 - Regular users
 - Occasional-use employees
 - Intensive-use employees
- Each type’s needs varies with the site purpose

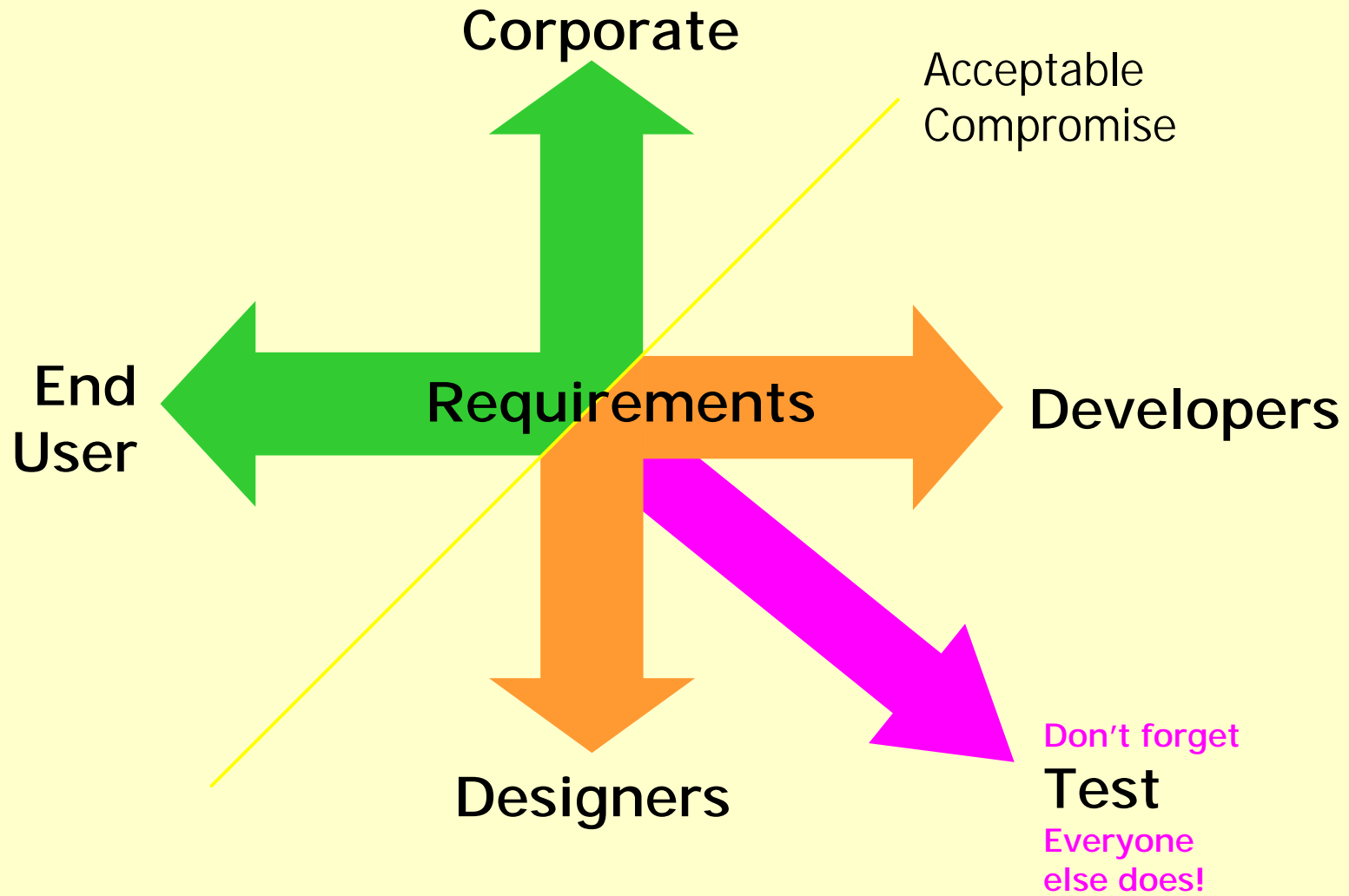
Site objectives

- Objectives are derived from corporate requirements
- Not all websites are conventional business:
 - Entertainment sites
 - Art sites
 - Not-for-profit sites
 - Technology showcases
 - Design showcases
 - Community
- These sites still have objectives and requirements
- User analysis must be closely aligned with objectives

Current approaches

- Graphics-led projects
 - Start with purely graphic mock ups
 - Designed for appearance
 - Driven by marketing and design objectives
- IT-led projects
 - Start with existing infrastructure
 - Add on new web software infrastructure
 - Layer front end over this
 - Driven by IT expediency
- **Neither approach is entirely satisfactory**

A systems-engineering approach



Practical issues

- Designers have no engineering training
 - Different concepts
 - Different vocabulary
- Need to put in place procedures
 - Need single point of contact
 - Need requirements management
 - Need change control
- Need configuration management
 - Once a paper design is done, it's done
 - Need to learn configuration control

But you need more

- Systems engineering doesn't do it all
 - Origins in large, relatively static projects
 - Designed to stabilize and control
- Web sites must be very dynamic
 - Constant change may be required
 - Planning is oriented around many different functions
 - Responsiveness is key
 - Yet stability must be maintained

Planning approaches

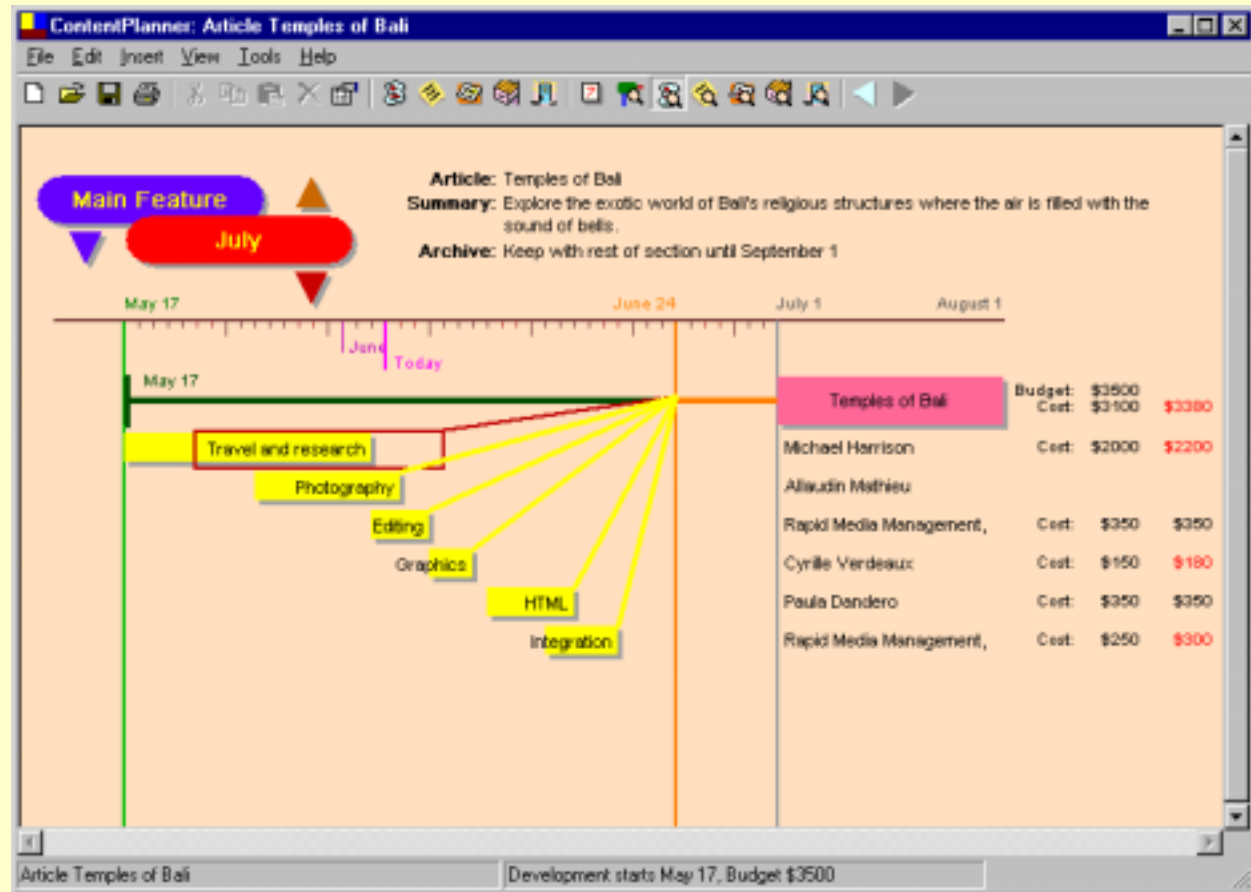
- Normal, forward planning
 - Starting from the start date, how long will it take
 - Take each planned task and add them up
 - This is the normal engineering method
 - Does not integrate with marketing or sales objectives
- Backward planning
 - Start from when the work is to be complete
 - Needs to synchronize with marketing events
 - Work out how many tasks can be done in time
 - Common in publishing – very good for web work

Content planning today

Jane
348-9178

	June	July	August
Main	Rudy's Parks Piece	Bali Can Lee do it?	Cayman ?
Pete	Paris When is the copy due?	Madonna Inn	Ojai Inn Who is doing the photo?
Sport	Surf Bikes	Golf	Diving 119.987.34.78 Get sushi on way home

Structured content planning





Publishing engineering

- Task breakdown beyond engineering
- Integration with business processes
- Time-line based deliveries
- Infrastructure for constant, structured change
- Long- and short-term planning
 - Infrastructure development
 - Content development
 - Corporate themes
 - Product line evolution

Controlling change

- Conventional systems engineering not sufficient
- Content-driven changes
 - News updates
 - Product line evolution
- Infrastructure-driven changes
 - Technologies
 - Defects
- Each needs its own approach

Infrastructure-driven changes

- This is engineering
- Apply standard systems-engineering techniques:
 - Change control
 - Bug tracking
 - Version management
- Educate the other stakeholders
 - Marketing
 - Designers
 - Remember that they don't have your training!
 - Explain why, don't impose

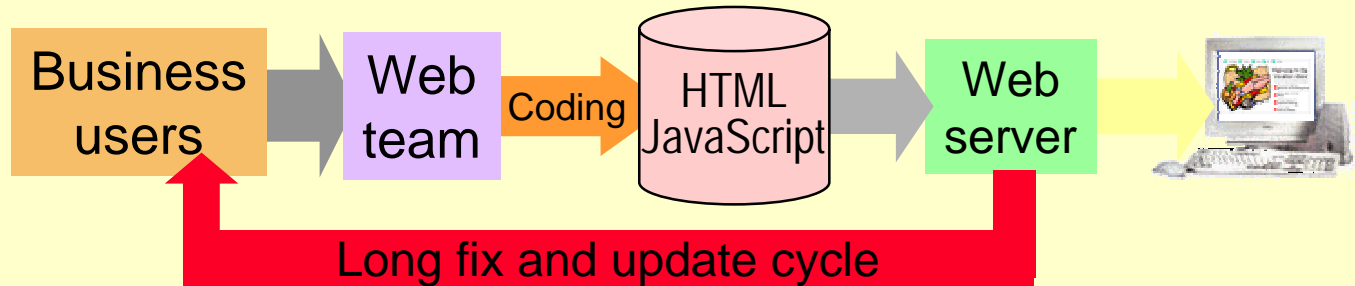
Content-driven changes

- This is more like publishing
- Standard techniques and practices are unfamiliar
- Need to develop new processes
- Need wide buy-in to integrate the web to the business core
 - More stakeholders!
 - More data management
- Automate where possible
 - Content management systems
 - Workflow systems
 - Prosumer Suite for dynamic activity

Remember the typing pool?



The web bottleneck



- Often long delays on servicing updates
- Often stonewalling for updates - technical excuses
- Web team have no context
- Frequent error injection
- Lack of business control of a business resource
- Continual expense, high total cost of ownership TCO

Site automation



- Software allows direct update
- Workflow controls who can change what
- Reduced error rates
- Control remains with those responsible
- Greatly reduced TCO

Automation tools

- Tools allowing business people to update sites:
 - Day
 - Dynabase
 - Interwoven
 - MediaSurface
 - Microsoft Content Management Server
 - Reef
 - Vignette
- Dynamic, interactive site construction
 - Prosumer Suite
- Toolkits for automation
 - ATG
 - BroadVision
 - Microsoft

Service with a smile



Suddenly we're all in service roles

- Previously engineering was hidden
- The web changes this:
 - Many sites are open to everyone
 - Failure is very public
 - Word of mouth (or email) is an important force
- Web engineering is a customer-facing role
- Sloppy work can no longer be tolerated

Conclusions

Wait a minute -
didn't we forget something?

Ah yes, test

- Testing is fundamental to good engineering, *but* the web is the land that test forgot:
 - Low reliability
 - No resilience to bad data
 - Frequent service outages
 - Little internal checking (e.g. 404 errors, missing graphics)
 - Platform incompatibility
 - Poor usability
 - Different bandwidths (modem, broadband)
- Test according to all key requirements
 - Corporate Availability, branding
 - Design Usability, design
 - User Achieving their tasks
 - IT Reliability and compatibility

Conclusions

- The web is crying out for good engineering practice
- A new discipline is forming, combining skills:
 - Engineering
 - Design
 - Publishing
 - Management
- Change is both fundamental and hazardous
- Web TCO is going to become a serious issue
- Software can improve web engineering *and*
- Software can reduce cost of ownership

Web aware today or not, it's coming your way