

No Excuses!

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TopSpeed DevCon '97

What's So Hard About Development?

- "The sheer joy of making things...useful to other people...in such a tractable medium"
- Frederick Brooks
- "A realm of sweaty, white-knuckled survival...where high tech is a constant subliminal hum... 'a deranged experiment in social Darwinism'"
- Bruce Sterling

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Are We Hitting The Wall?

- "Computers are in deep trouble...the promise has not been kept...there has been little net productivity gain."
- Thomas Landauer
- "There's always a reason why computer systems fail...too complex for us to predict their behavior...We've lost control!"
- Gregory Rawlins

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The Curves Are Still Exponential

- “Program a map to display frequency of data exchange...Manhattan and Atlanta burn solid white...Your map is about to go nova”
- William Gibson
- “An immersive virtual environment... 9.8×10^{15} bits (~one Petabyte) of data...bandwidth of 165 Gigabytes per second”
- Thomas Sterling *et al.*

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With Friends Like These...

- “The average project experiences a 25% change in requirements during development”
- Barry Boehm
- “53% of defects disrupt existing features in the process of adding new features”
- Collofello & Buck
- “Misuse [creates] new social problems”
- Forester & Morrison

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Aiming Our Silver Bullets

- Java: “Write once, debug everywhere”
- Intelligent agents: conflicting agendas
- End-user programming: people learn when they care about the task
- GUIs: a whole new way to miss the point
- Networks: distributed systems > 5 feet apart

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The Java's Brewing Strong

- Rapid adoption on desktops and in devices
- If it were only a language, that would be good enough...but it's much more
- JavaBeans components and CORBA distributed objects are coming quickly
- Server-side Java is more portable, less dependent on GUI quirks

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"Intelligent Agents" Aren't

- Game theory intervenes when agents from different sources interact
- Scenarios:
 - Inventory management versus spot pricing
 - Scarce-resource allocation versus external costs
- Protocols must enable negotiation and concession

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End-User Programming?

- Programmers' jobs remain secure
- Building-block metaphors?
 - Crude approximations
 - Fragile connections
 - Poor tolerance for disturbance
- Visual programming tools expose the wrong things

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GUIs Can Get In The Way

- Graphical user interface design should be based on real research about decision making and pattern recognition
- Menus should group choices in appropriate ways that reflect multiple paths
- Slow response is the ultimate unfriendliness
- We can do better than imitating paper forms

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Menus should have ⁵ 7-9 items,
ie, 7 ± 2

The Network Is Not A Computer

- Networks are not reliable
- Networks are relatively slow
- Objects may not be always available
- Systems should make location irrelevant
- Security is links, not layers: defend in depth
- Trust people, not technology: legitimate participants are source of much fraud

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"Be Not the First by whom the New are Tried..."?

- What is cost of waiting for GA code?
- Early adopters influence 1.0 tools
- Know difference between a "technology" and a "platform"
- Know when patience is appropriate
- Keep your eye on long-range goals

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*“...Nor Yet the Last
to Lay the Old Aside”?*

- “It’s the data, stupid”
- Every legacy was once the hot new thing
- 3270 and 5250 emulation can’t be abandoned yet
- Y2K problems accumulate in multi-layer legacy environments

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- Information and tools have never been easier to acquire
- Technology investment has never been easier to justify
- Skills have never been more in demand
- Keep the big picture in view

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