The "Net Effect" of New Technologies on Higher Education
Changes at Internet Speed

To reach 50 million people:

- Radio took 40 years
- Television took 13 years
- The Internet took just 4 years

An Internet Year takes only 3 months. So, if you stand still, you fall behind four times as fast!
The Impact of the Internet

- Learning centered around the student instead of around the classroom
- Focus on the strengths and needs of individual learners
- Lifelong learning is a practical reality
- Boundaries of time and space are broken

*Source: US Presidential Web Commission*
The Net Changes Everything

“In the industrial age, students went to the classroom. In the information age, the classroom comes to the student.”

Andy DiPaolo
Executive Director
Stanford Center for Professional Development
## Education is Changing

| Education Trends                                                                 | Education Trends                                                                 |
| Adam: Four-Year Degree                                                          | Barney: Forty-Year Degree                                                        |
| Training as Cost Center                                                        | Training as #1 Source of Competitive Advantage                                   |
| Learner Mobility                                                                | Content Mobility                                                                 |
| Distance Education                                                             | Distributed Learning                                                             |
| Correspondence & Video                                                          | High-Tech Multimedia Centers                                                     |
| One-Size Fits All                                                               | Tailored Programs                                                                |
| Geographic Institutions                                                         | Brand Name Universities & Celebrity Professors                                    |
| Just-in-Case                                                                    | Just-in-Time                                                                     |
| Isolated                                                                       | Virtual Learning Communities                                                     |

*Source: Merrill Lynch*
Impact on Institutions

- Make Decisions Rapidly
- Increase the Pace of Change
- Recognize the Competition
- Reduce Complexities
- Meet Customer Expectations
- More flexibility
- Cost effectiveness
- A high level of customer service
Education Today

Educational Services
Delivered to
Anyone
Anywhere
Anytime
on Anything
Consider These Points

- In 1999, more than half of America's classrooms had Internet access--by the end of 2001, virtually every classroom in America will have access to the Internet.

- According to a survey by Greenfield Online, 78% of college students have been accessing the Web for at least three years and 90% are online three hours a day.

- In May 2001, the University of Phoenix Online had 25,700 students enrolled in degree programs, an increase of 86% from the previous year.
Consider These Points

- By 2002, 85% of colleges and universities will be offering distance learning courses, up from 58% in 1998-- International Data Corp (IDC).

- IDC also predicts that the number of "Web Learners" will grow to 2.2 million by 2002, compared to 710,000 in 1998.

- E-learning benefits reported by corporations, e.g., Unisys University reduced training costs by 25-45%; reduced training time by 35-45 %; and increased learning effectiveness by 15-25%.

- The e-learning market is expected to grow to $12 billion by 2003, according to IDC.
Trends Driving E-Learning

' Exploding Numbers of Users
' Student Expectations Growing
' Increasing Capabilities of Internet Technologies
' Mass Customization of Material and Content for Students -> Portals
' Growing Numbers of Success Stories and Learning Experiences
' Competition and Revenue Potential!
Issues and Considerations

- How will e-learning providers integrate wireless access devices into their programs?
- The quality of e-learning is still in question.
- What are the right mixes and balances of "physical" and "virtual" learning elements?
- Building, scaling, and maintaining the infrastructure necessary for e-learning is a major challenge.
Welcome to the 21st Century: A New Era in Education
Digital Everything

New Ways of Doing Business

The Digital Era

New Customer Expectations

New Competitors
Three Bets in 1995

Java

Internet

Bandwidth
Beyond the PC Era

Source: Gartner
The Net Effect = Users x Devices x Services x BW

Net Effect = Metcalfe's Law x

Moore's Law

Gilder's Law
Three New Bets

Massive Scale

Integratable Stack

Continuous Real-time
Architecting for the Net Effect

- Devices
- Services
- The Net Effect
- Webtone
Reinventing the IT Model

Web Services
The Network
Any Network Device
The Information Utility

Applications and Platforms
The Computer Room
The PC
The Network
Services on Demand
Infrastructure ABC's

A is for Appliances

B is for Browsers

C is for Connectivity and Content

D is for the Datacenter
Sun ONE Architecture and Products
Open Technology from Sun

- Many source code Licenses, including SPARC
- Many free binaries, including Solaris
- Linux support, including StarOffice
- Educational pricing, including iPlanet
Scott McNealy’s Top 10 List for Education

1. Put everything on the net.
2. Invest in bandwidth.
3. Invest in digital curriculum.
4. Build everything to open standards.
5. Outsource anything that isn’t core to what you do.
Scott McNealy's Top 10 List for Education

6. Take advantage of free software.
7. Create portals for your communities.
8. Teach Java.
9. Move to a utility model of computing.
10. We're in the post-PC era—Deal with it.

"Campus Advisor" Newsletter
www.sun.com/edu/admin/#newsletter
Anticipating the Future

- The network will be everywhere for everyone—as reliable as dialtone
- There will be a proliferation of networked devices
- Services will be developed for the "Net" (not for devices)
- Web services will evolve, giving us anytime, anywhere, anyone, any device services for communities
Anticipating the Future

- Wireless connectivity will grow dramatically
- The future IT architecture will look more like today's telecom model
- Hosted services will grow and be seen as a viable alternative infrastructure
- Everything will be Mission Critical
- Simplicity will be a critical success factor
Powering the Knowledge Community

www.sun.com/edu