

# Music Computing Goes Mobile!!

Presentation for

Association for Technology in Music Instruction

September 27-28, 2002

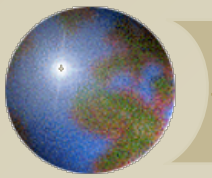
Kansas City

David Williams, Illinois State University

Peter Webster, Northwestern University

Session I





# Why This Topic?

## ✚ Philosophical Reasons

- ✚ Constructionist View
- ✚ Encouragement of creative thinking

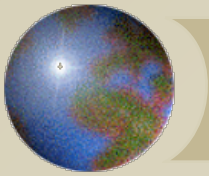
## ✚ Social Reasons

- ✚ Active lifestyles
- ✚ Need for convenient access of data

## ✚ Practical Reasons

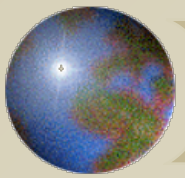
- ✚ Educationally useful
- ✚ Ease of use
- ✚ Dropping costs





# Organization for the Two Sessions

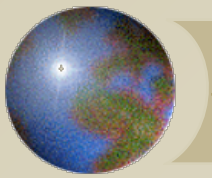
- ⊕ Session I: Solutions for the Itinerant Musician
  - Personal Hardware/Software
  - Wireless Developments for Personal Hardware
  - Music in a Box
  
- ⊕ Session II: Future of Music Studios, Labs and Classrooms
  - Recording Studios Go Mobile
  - Mobile and Wireless Penetrates the Classroom
  - Wither Goeth Music Computer Labs?
  - Integrating Mobile Computing into Instruction
  - Key Considerations and Issues



# Session I: Solutions for the Itinerant Musician

## Personal Productivity

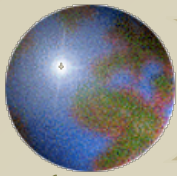




# Tradeoffs Between Mobile vs. Desktop Solutions: General Observations

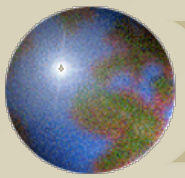
- ✚ Technology transparency: “technology in the background”
- ✚ Approach to Preparation
- ✚ Data on Demand
- ✚ Cost
- ✚ Security





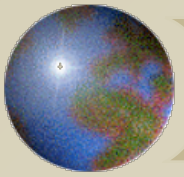
# 1. Personal Hardware and Software





# iPAQ Pocket PC w/Keyboard





# Connectivity

Ethernet

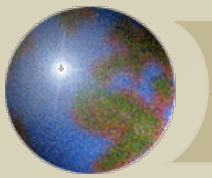


Cellular  
Modem



WiFi





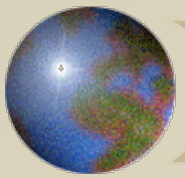
# Cell phones on steroids!

Cell phones,  
PIMs, Palms/  
PocketPCs, Web  
browsers, MP3  
players, all rolled  
into one!

Kyocera 7135



Courtesy Kyocera



# PIM, cont.

Notes 4:19p

All Folders Name

Account Number...	9/28/01	1k
BOOKS	9/28/01	2k
CANOE PURCHAS...	9/28/01	2k
Cell Phone Numb...	9/28/01	0b
computerwho	9/28/01	696b
CTSG Accounts	10/8/01	836b
CTSG Contacts1	9/28/01	3k
Dave's Health Rul...	9/2	
ISU NEWS CONT...	9/2	
IT Management ...	9/2	
ORAT #s	9/2	
Resistance Formula	9/2	
WEB SITES TO T...	9/2	

New Tools

Lake and river performance

Good performance with reasonable stability

Wood trim, not plastic

15-16 foot

123 1 2 3 4 5 6 7 8 9 0 - =

Tab q w e r t y u i o p [ ]

CAP a s d f g h j k l ; ' "

Shift z x c v b n m , . /

Ctl áü ` \

New Edit Tools

Notes 4:19p ok

CANOE PURCHASE Seat one (solo) or two Light enough that one person can put on/off roof of car

Tasks 2:18

All Tasks Priority

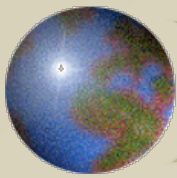
- CTSG Notes
- Dave Frazer UBC Frazer Family
- Estate Planning Details
- IPAQ TODO List

Tasks 2:19 ok

IPAQ TODO List

- Find better Powerpoint alternatives
- Explore other email clients
- Install and test video when available
- Meeting Maker sync to Outlook
- Printing

Edit Tools



# Word, Excel, and Access

**Pocket Word** 4:21p

Now is the time for all good men to come to the aid of their country.

And this is another test, iiii

**Pocket Excel** 7:38p

Budget	Status	Actual Tech Tuition
\$10,000	1-year	
\$160,000	1-year	
\$20,000	2-years	
\$190,000		
\$27,000	1-year	\$30,000
\$22,500	2-years	
\$45,000	2-years	

Ready Sheet1 Sum=0  
New Edit View Format Tools

**Data On The Run** 2:08

I..	Title	AFI	Date
2	101 Dalmations	No	196
3	2001: A Space Odyssey	Yes	196
4	39 Steps	No	193
5	African Queen	Yes	195

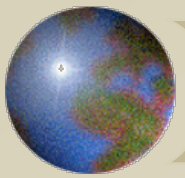
**Data On The Run** 2:08

Navigation icons:

Records: 1 The  
Selected: 4 To

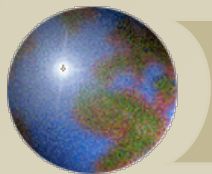
File Edit M

File Edit Move View



# Web Explorer





# Meeting Maker

Internet Explorer 4:18p  
file:///My Documents/Calendar/dbw Go

Dave Williams / Calendar

October 2001    November 2001

S	M	T	W	T	F	S
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3

January 2002    February 2002

View Tools

Internet Explorer 4:18p  
file:///My Documents/Calendar/dbw Go

Dave Williams /  
Wednesday, October  
10, 2001

9:00 AM -	<a href="#">Meeting w/Galen and Jerry F. @ Citizen Bank Building</a>
10:00 AM -	
11:00 AM -	<a href="#">Dave Greenfield &amp; Dave Williams @ BU112</a>

View Tools

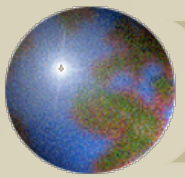
Internet Explorer 4:18p  
file:///My Documents/Calendar/dbw Go

Dave Williams /  
Activity Information

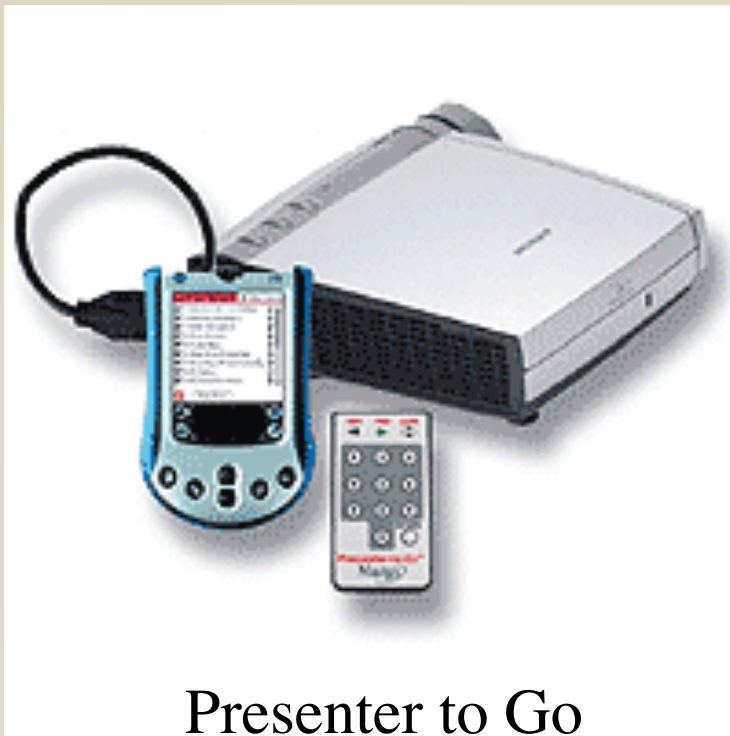
**Title:** Meeting w/Galen and Jerry F  
**Location:** Citizen Bank Building  
**Schedule:** Wednesday, October 10, 2001  
9:00 AM to 10:00 AM  
**Notes:**

*Generated on Tuesday, October 09,  
2001 11:30 AM by Meeting Maker (r)  
Copyright (c) 2000 ON Technology*

View Tools



# Handheld and Video

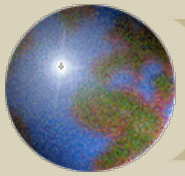


Presenter to Go  
from Margi

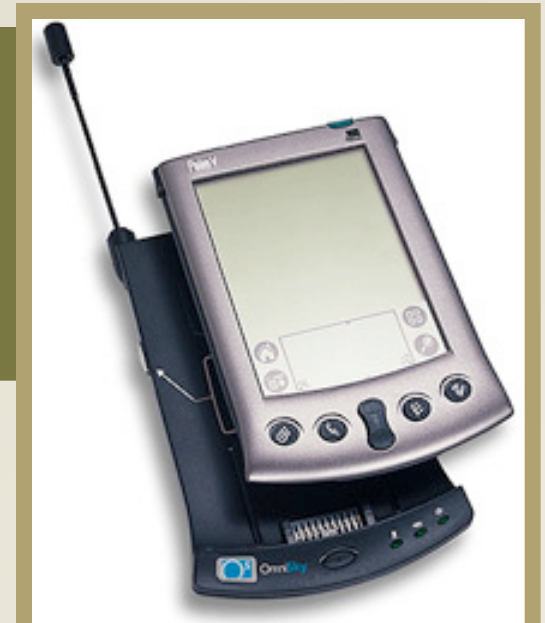
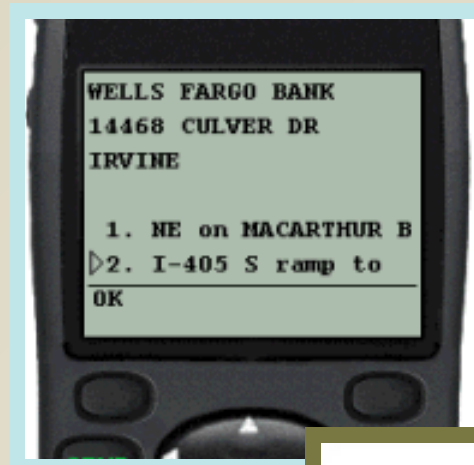


Voyager VGA





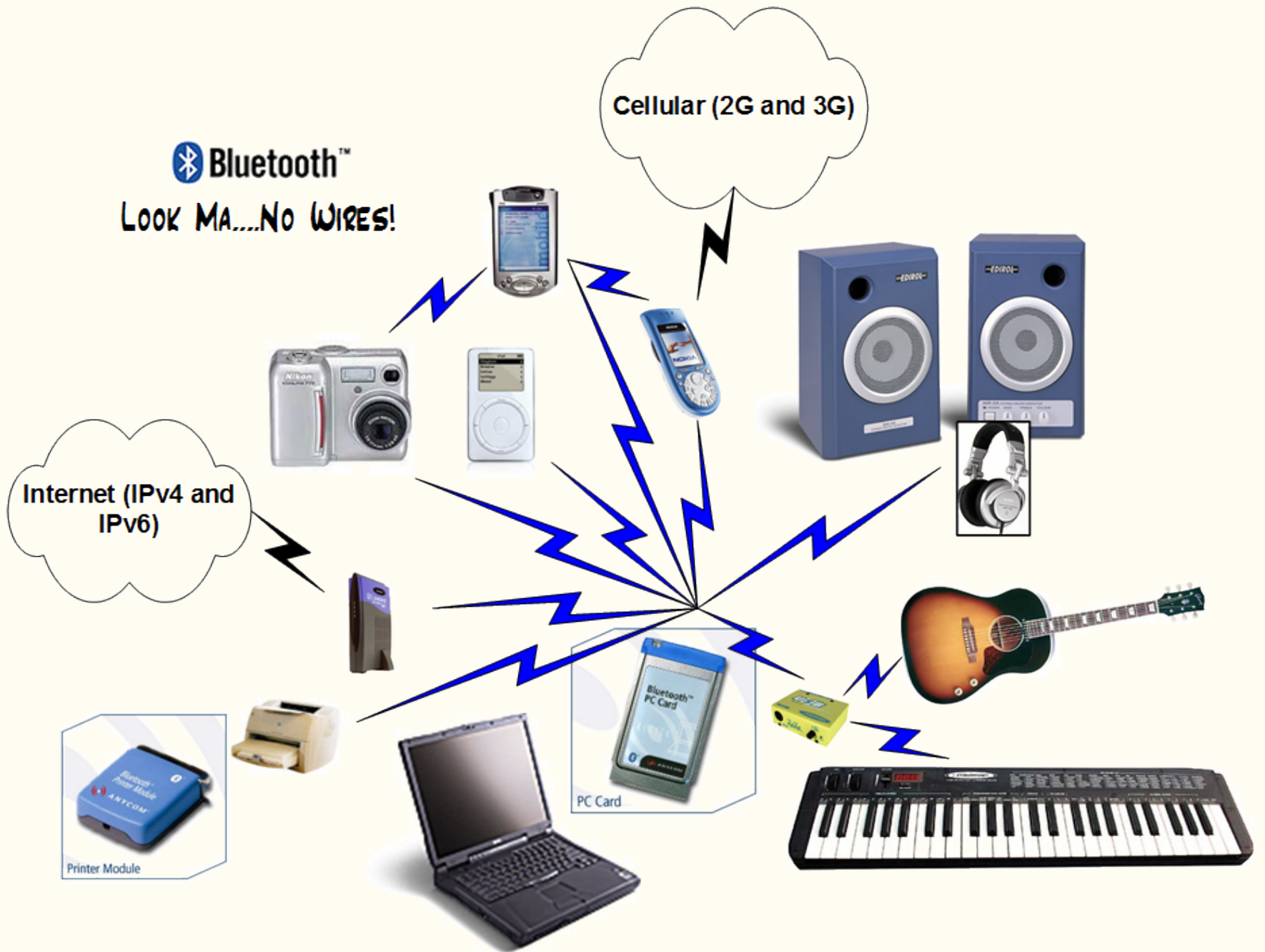
## 2. Wireless Developments

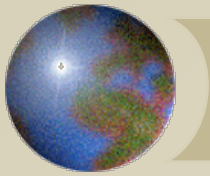


 **Bluetooth™**  
LOOK MA...NO WIRES!

Cellular (2G and 3G)

Internet (IPv4 and IPv6)





# Tyranny of the wires and plugs!

## ⊕ Infra Red

- ⊞ Very short distance
- ⊞ Slowest
- ⊞ Needs to point directly at device

## ⊕ Bluetooth v1

- ⊞ 10x slower than WiFi (720 kbit/ps) IPv4
- ⊞ Cheap and low power consumption
- ⊞ Small, can be imbedded in most anything
- ⊞ Goes through walls, 300 feet
- ⊞ No video

## Bluetooth v2

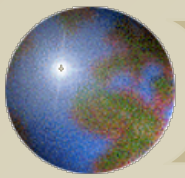
IPv6 (Internet 2 protocols)  
10 mbit/ps  
Handle video

## WiFi 802.11b Wireless

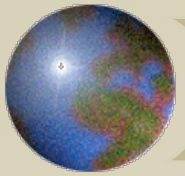
Fastest (10 mbps and moving toward 50 mbps)  
Security issues to resolve  
Through walls, carries about a city block

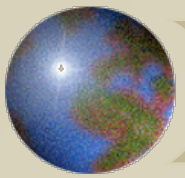
## Cellular

1-, 2- and 3-G speeds  
1xRTT CDMA (56 kbit/ps)  
CDMA and GSM



**JUNE 11-14**  
**BLUETOOTH CONGRESS 2002**  
AMSTERDAM, NETHERLANDS



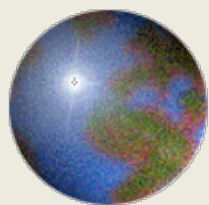


# The ultimate ubiquity!

**The Wireless Revolution Continues...**

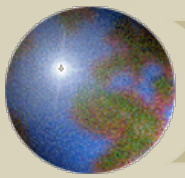


© 2000 Randy Glasbergen. [www.glasbergen.com](http://www.glasbergen.com)



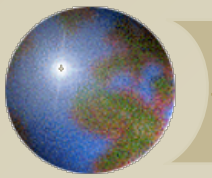
## 3. Music in a Box

Taking your computer music with you....



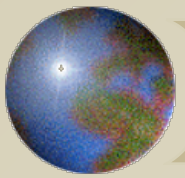
# MP3 Players and Software





# Wireless Headphones





# Bluetooth Wireless MIDI on the Way from Midiman

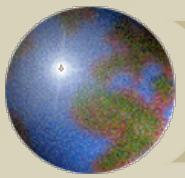
July 27, 2001

At the Summer NAMM Show, Midiman displayed a pair of wireless MIDI interfaces based on the [Bluetooth standard](#). If your PC has a Bluetooth card in it, you can connect to MIDI devices wirelessly! Theoretically, it is also possible to use a pair of these as an expensive replacement for MIDI cables.

Bluetooth wireless technology is a short-range two-way radio designed to replace cable runs. For example, if you have



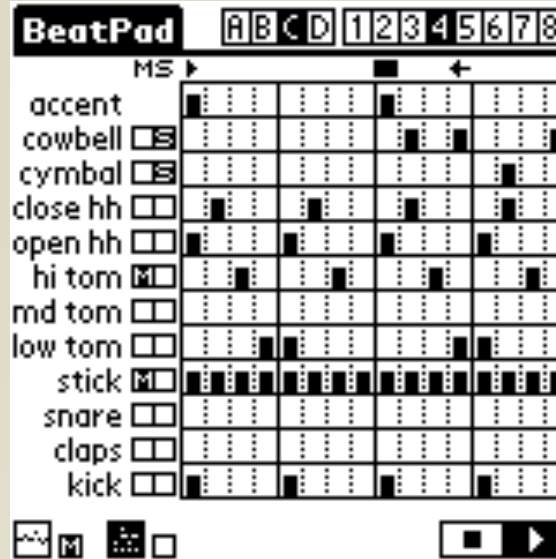
**Prototypes**  
(Click for a close-up)



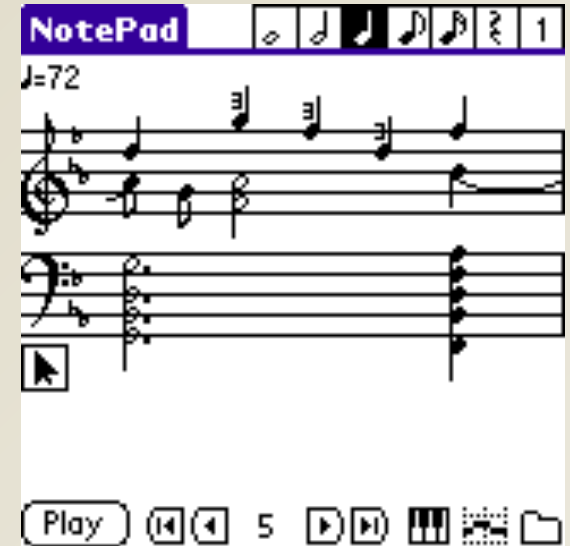
# MIDI for Palm



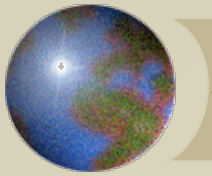
MIDI Plug from  
MiniMusic



BeatPad  
From MiniMusic



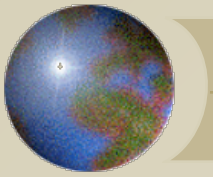
NotePad  
From MiniMusic



# PocketPC Music Software

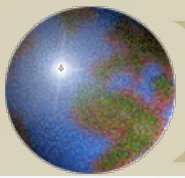
Pdamusician.com's  
Pocket Drums

Griff Pocket Synth

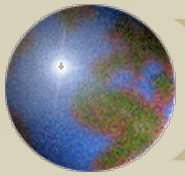


# Virtual Synthesizers

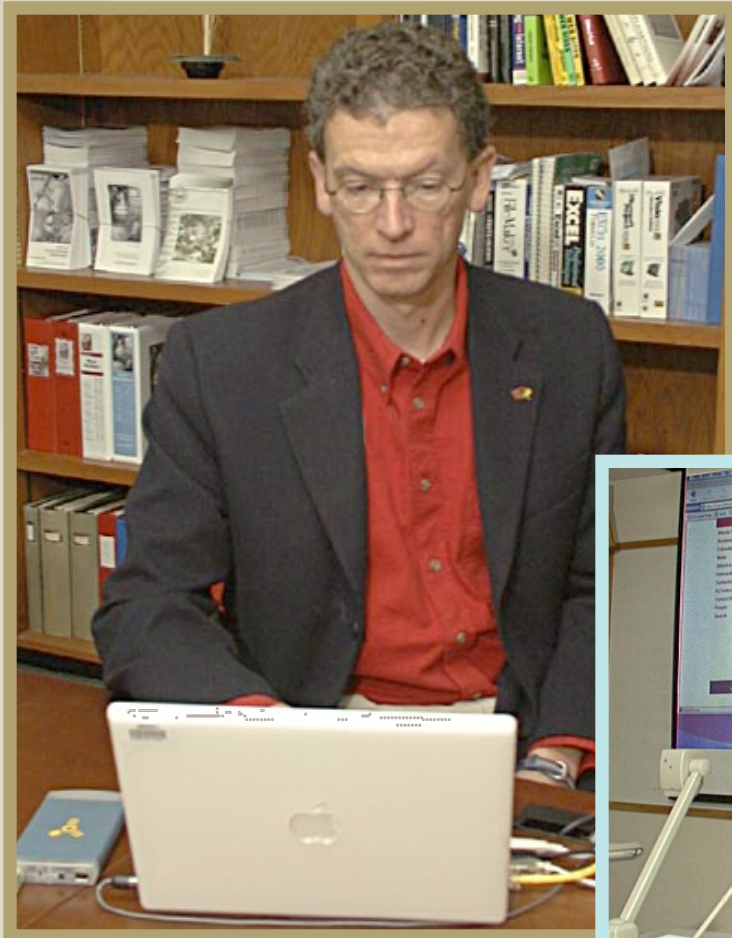
## “Hardware going soft..”

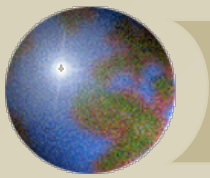


# Wearing your computer

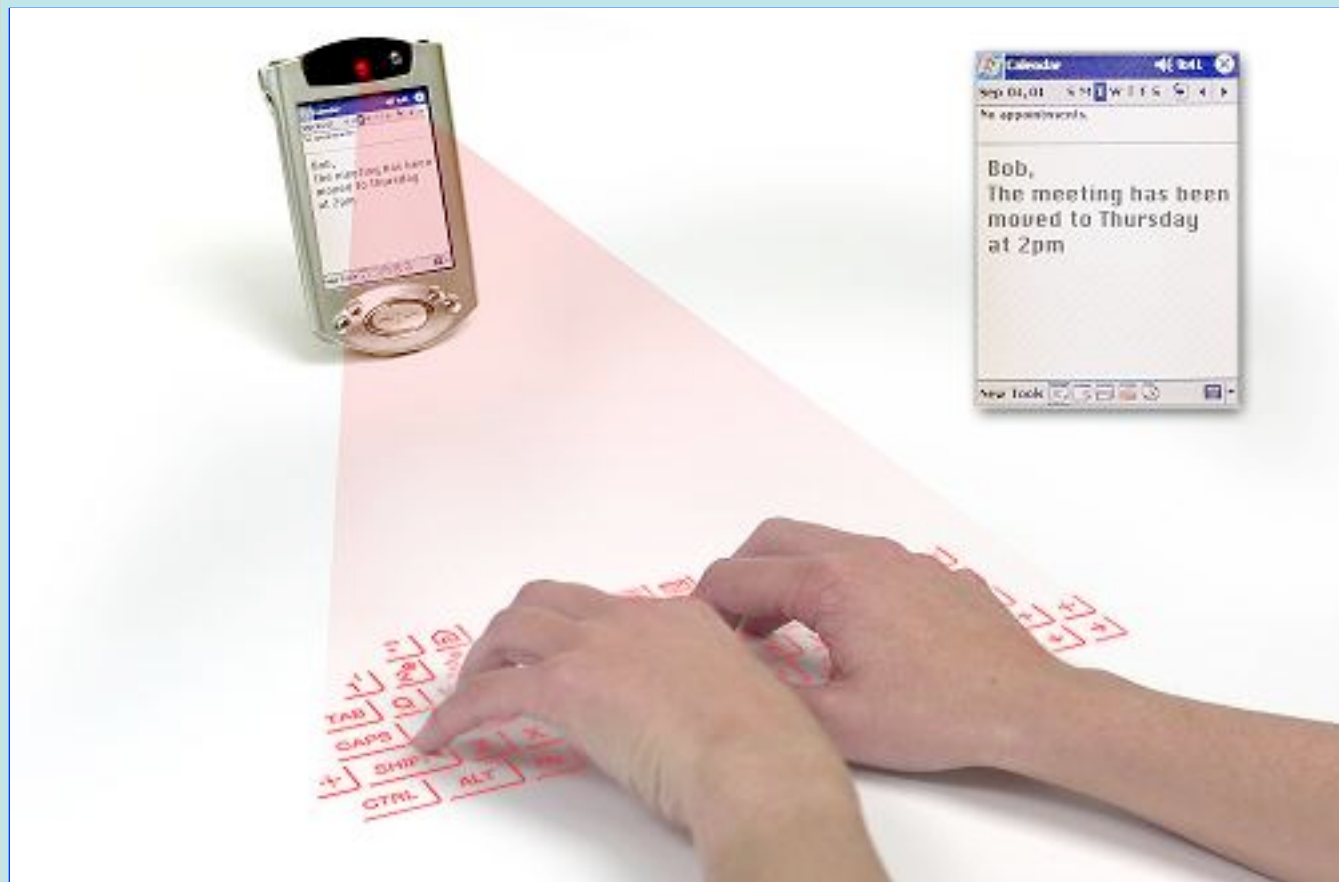


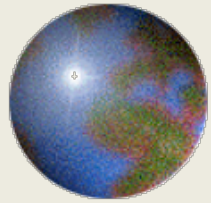
# Roaming Faculty



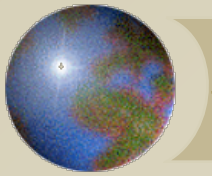


# How flexible can we get?



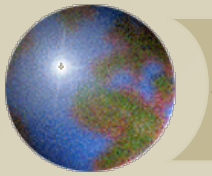


## 4. Key Considerations and Issues



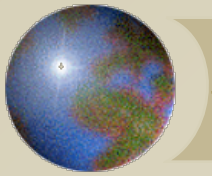
## Reasons people give for not going mobile

- ⊕ Keyboard and screen comfort
- ⊕ Need for docking stations, alternative displays, keyboards, etc.
- ⊕ More repair prone
- ⊕ Price point higher than desktop unit
- ⊕ Overall more expensive to maintain
- ⊕ Security, theft, damage



# Undesirable Attributes

- ✚ Student off-task behavior with handheld devices
- ✚ Students loss of focus because of variety and amount of information
- ✚ Lack of wireless etiquette
- ✚ “Cool” factor overshadowing music content
- ✚ Cost and security
- ✚ Lack of “serious” software
- ✚ Teacher time
- ✚ Change in culture seen as threatening



# Illinois State Challenges:

- ⊕ Taking computing with you, not going to the computer.
- ⊕ Intellectual Commons (iCommons)
- ⊕ Selective beaming of campus information
- ⊕ Accommodating PDAs and Cell Phones
- ⊕ Classroom access to laptops, etc.
- ⊕ Changing recapitalization of technology budget strategies
- ⊕ Faculty and staff support and training for portable computing/rethinking curriculum

