

MOBILE COMPUTING PERSONAE

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Just what will we do with highly mobile computers,
and what are the system software implications?

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MOBILE WORKSTATIONS vs PDAs

Mobile workstations (also portable computers, notebooks, etc.)

Fully configured computers

Screen, keyboard, disk, etc.

Big enough to do it all



PDA (Personal Digital Assistant, such as Newton, Eo, etc.)

Minimal computer

Wireless communication

Small enough to carry all of the time



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DO WE NEED PDAs?

Question: Is there a "killer application" that will make PDAs indispensable?

Hint: It is not really an application

Clue: (from an Apple TV commercial)
"What's on your Powerbook is you!"

Answer: *Perhaps* - it depends on the evolution of ubiquitous computing

Portable workstation - carry you where ever you go

Universal connectivity - leave you home and access remotely

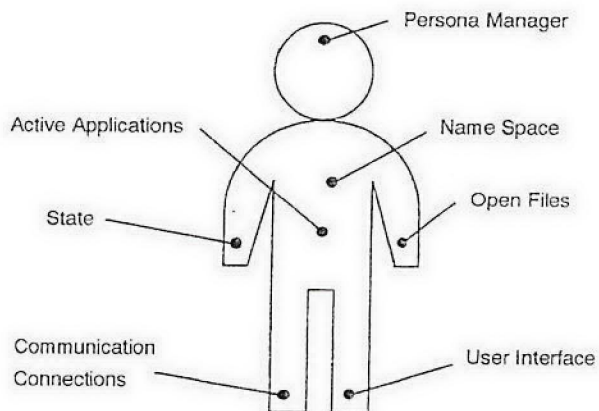
Mobile Personae - re-establish you at your location

By you, we mean your computing persona

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WHAT IS A COMPUTING PERSONA?



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IS PERSONA NEW?

Whenever a user logs in to a computer, a persona is established

Each user customizes his or her persona

Persona has a passive part and an active part

Passive part - files, devices, network connections

Active part - running applications, communication links

With multiple computers, a user has multiple personae

Must manually force consistency

Copy files, restart applications, rebuild communications

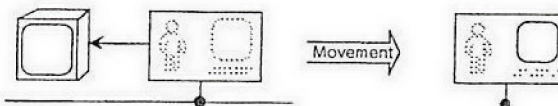
A major pain

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MOBILE WORKSTATIONS AND IMPLICIT PERSONA

Be a turtle and carry your home with you - Mac Duo, for example



Problems:

Portable machines are never as powerful as fixed machines

Portable is a vulnerable single point-of-failure

Upgrades are traumatic

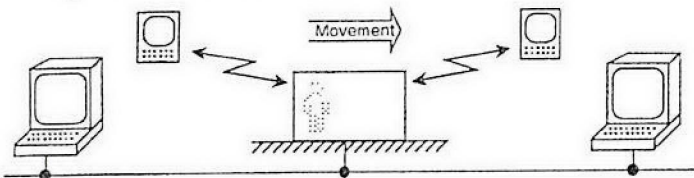
Does not solve the multiple machine problem

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UBIQUITOUS COMPUTING AND PERSONA

Assume universal connectivity, say within a building
 Use PDA as active badge and portable user interface
 ParcTab, for example
 Agent resides on a fixed computer



PDA's report user location, allow remote control of applications

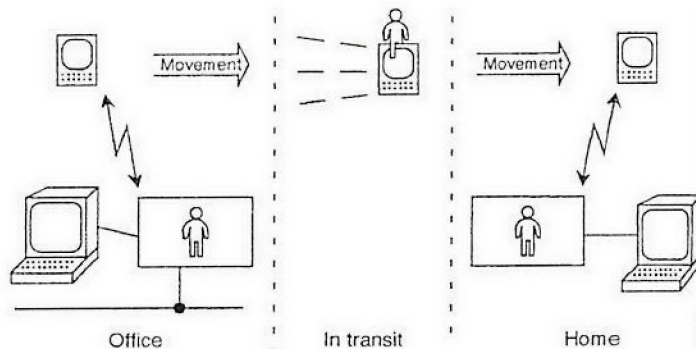
Problems:

Need universal connectivity - will it ever happen?
 Assumes significant computing structure in place

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EXPLICIT MOBILE PERSONA



PDA as a persona carrier - could also use a network

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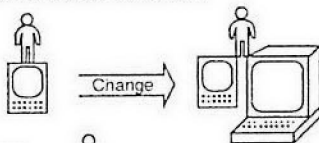
USER'S VIEW OF MOBILE PERSONA

Persona movement managed by PDA
 Assumes PDA is with user at all times
 PDA carries persona or network reference



Persona is imposed on computing resources
 User initiates process, resources could be a collection of elements
 Environment is recreated based on available resources

Can change dynamically



Must accommodate limited resources



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OBJECTIONS TO PERSONA

"A persona is just a files system - like AFS"
 AFS allows users to establish file access from most anywhere
 Response - must evolve AFS and add active part

"I'm schizophrenic - I have multiple personae!"
 Company-confidential files at work, games at home
 Response - personae are location dependent

"It's not a 'persona', it's just the 'user environment!'"
 It is actually what the user sees, not really the user
 Response - perhaps it should look like:



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PERSONA'S INTERNAL ORGANS

Note: organ transplants allowed and encouraged

File system - an evolution of disconnected file systems - like Coda
 Persona is the client, not a specific machine
 "Client-ness" moves through a sequence of machines

Information repository - a generalized file system
 Related to Prospero and World Wide Web
 Multiple storage sites, multiple access protocols
 Flexible locking and caching

Mobile applications - including the persona manager
 Eg: a "follow-me word processor"
 Must be able to stop, move and restart - need "effective state"
 Must preserve communication links - portable sockets, not mobile IP

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FILE SYSTEMS AND MOBILE PERSONA

Files have a permanent home on a server
 Persona caches files and makes updates
 Files are "flushed" back to server

Similar to AFS and Coda
 AFS allows client machines to cache files
 Coda adds ability for clients to be disconnected

Persona may move to other machines
 Files may return to server from another location
 Persona leaves state behind
 Useful if persona carrier dies

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