Calm Computing

The Coming Age of Calm Computing

Mark Weiser and
John Seely Brown

Whyfor, Calm Computing?

Whyfor, Calm Computing?

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Computer Evolution

Mainframes

Whyfor, Calm Computing?

Computer Evolution

Mainframes

PCs

Whyfor, Calm Computing?

Computer Evolution

Mainframes

PCs

Internet

Whyfor, Calm Computing?

Computer Evolution

Mainframes

PCs

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Mobile

Whyfor, Calm Computing?

Computer Evolution

Mainframes

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Mobile

Ubicomp

What IS Calm Computing?

What IS Calm Computing?

Attention has two places:

What IS Calm Computing?

Attention has two places:

Center

What IS Calm Computing?

Attention has two places:

Center

Periphery

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Calm computing moves
between center and periphery

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Attention has two places:

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    Calm because

What IS Calm Computing?

Attention has two places:

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Calm computing moves
between center and periphery

Calm because

    Periphery informs without overwhelming

What IS Calm Computing?

Attention has two places:

Center

Periphery

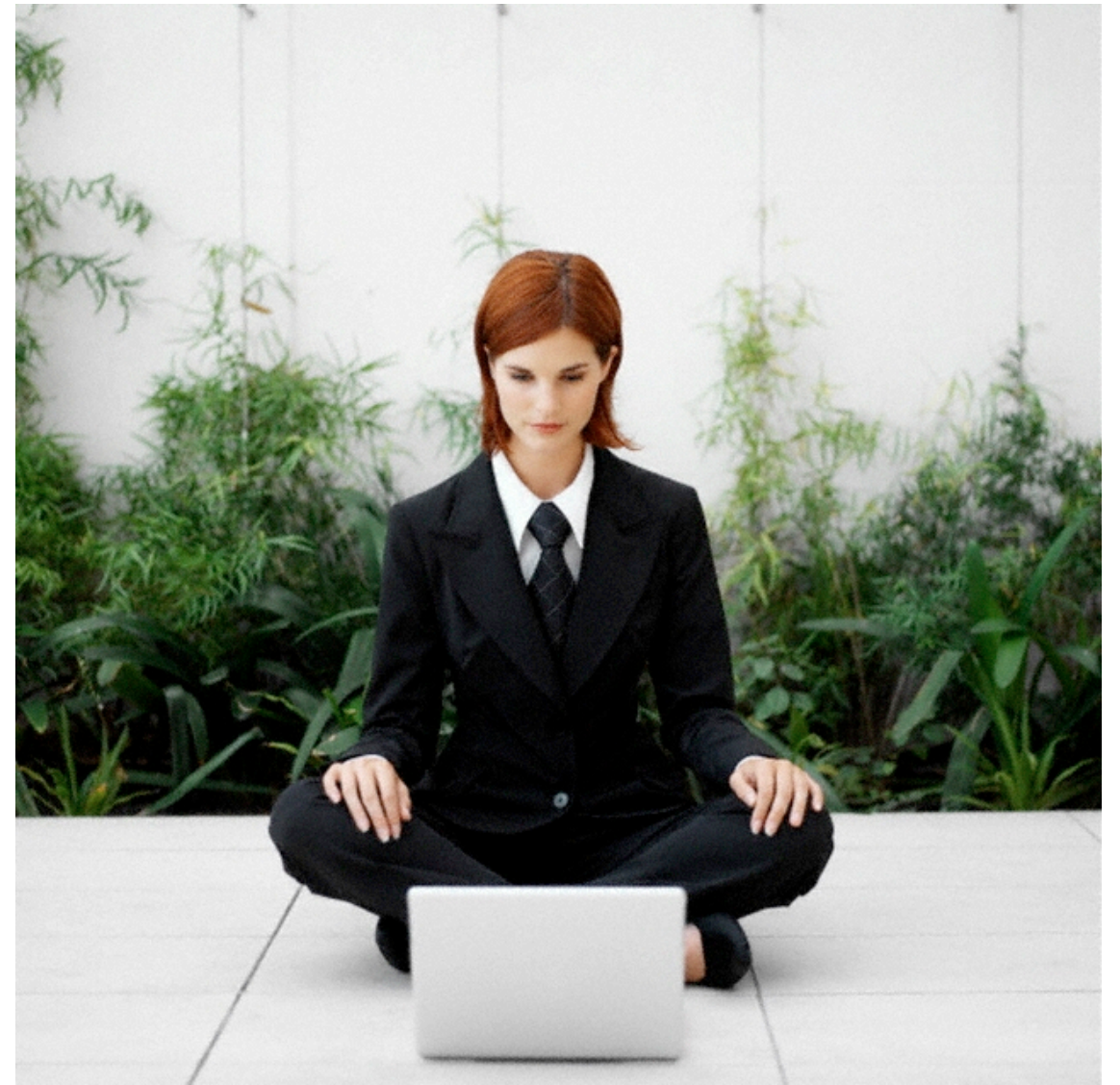Calm computing moves between center and periphery

Calm because

Periphery informs without overwhelming

You can move to the center to get control

When is something a Calm Technology?

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When it empowers our periphery:

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Easily moves from center to periphery

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Throbbing Apple light

When is something a Calm Technology?

When it empowers our periphery:

    Easily moves from center to periphery
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      My printer turns itself off
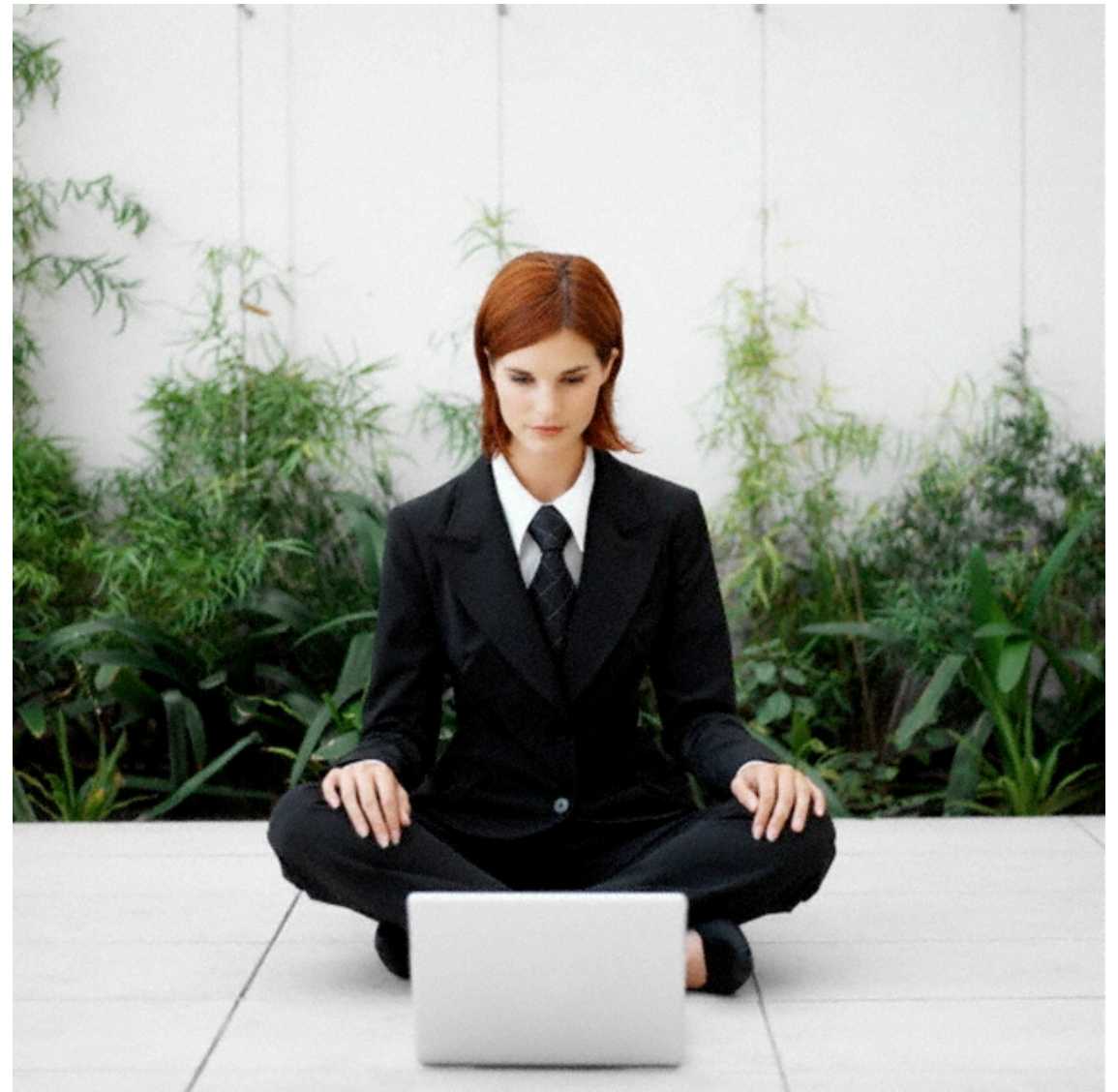
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Brings more details into periphery

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Teleconferencing

When is something a Calm Technology?

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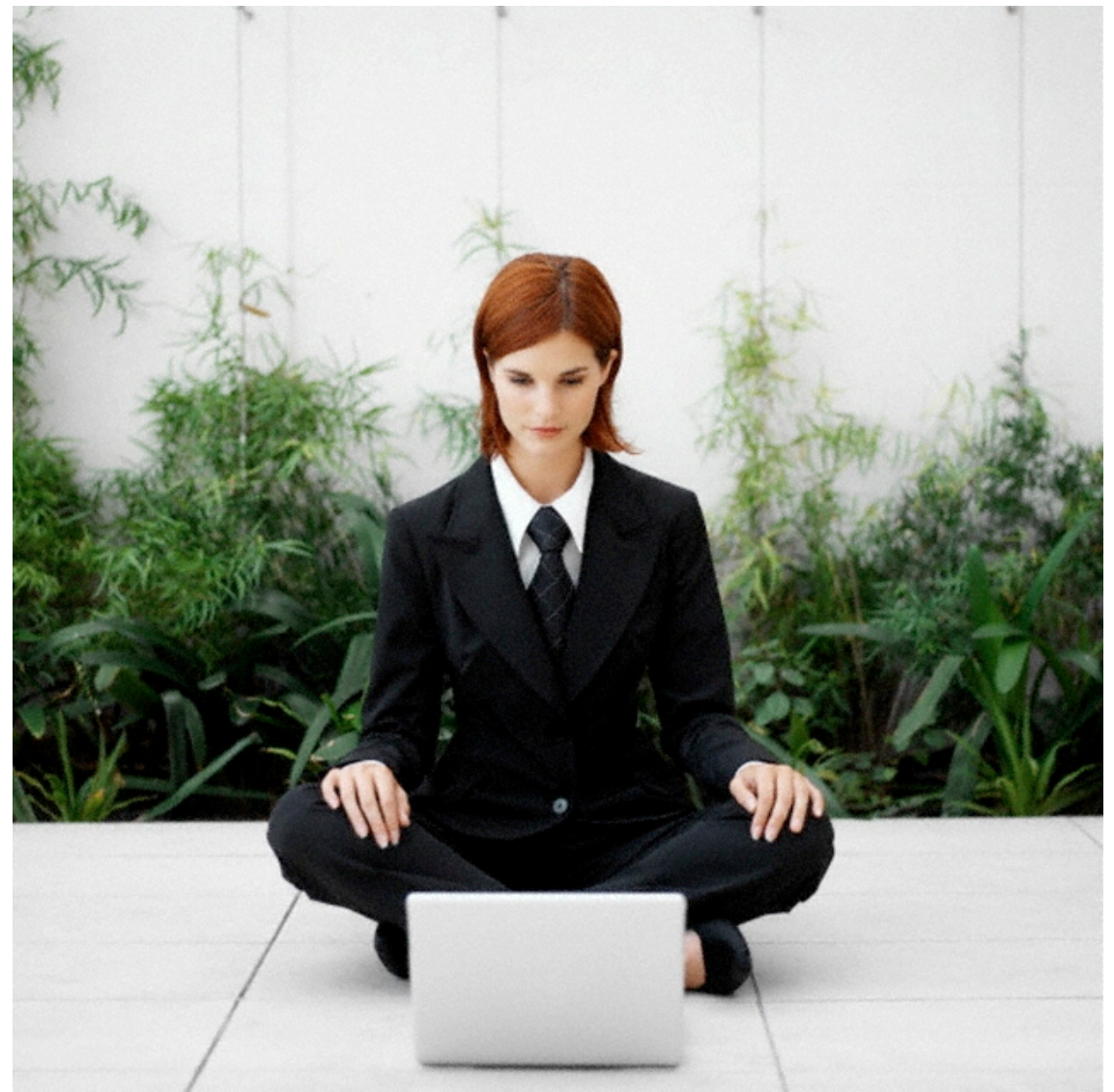
    Easily moves from center to periphery
        Throbbing Apple light
        My printer turns itself off

    Brings more details into periphery
        Teleconferencing
        Other examples?

Example 1

Example 1

Office door window

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Office door window

Looking out to context

Example 1

Office door window

Looking out to context

Looking in at occupant

Example 1

Office door window

Looking out to context

Looking in at occupant

Privacy preserved

Example 2

Example 2

Dangling string

Example 2

Dangling string

Provides network activity information

Example 2

Dangling string

Provides network activity information

Brings invisible info into periphery

Example 2

Dangling string

Provides network activity information

Brings invisible info into periphery

BUT

Example 2

Dangling string

Provides network activity information

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BUT

Does it stay in our periphery?

Thought questions?

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What's missing in this model?

Thought questions?

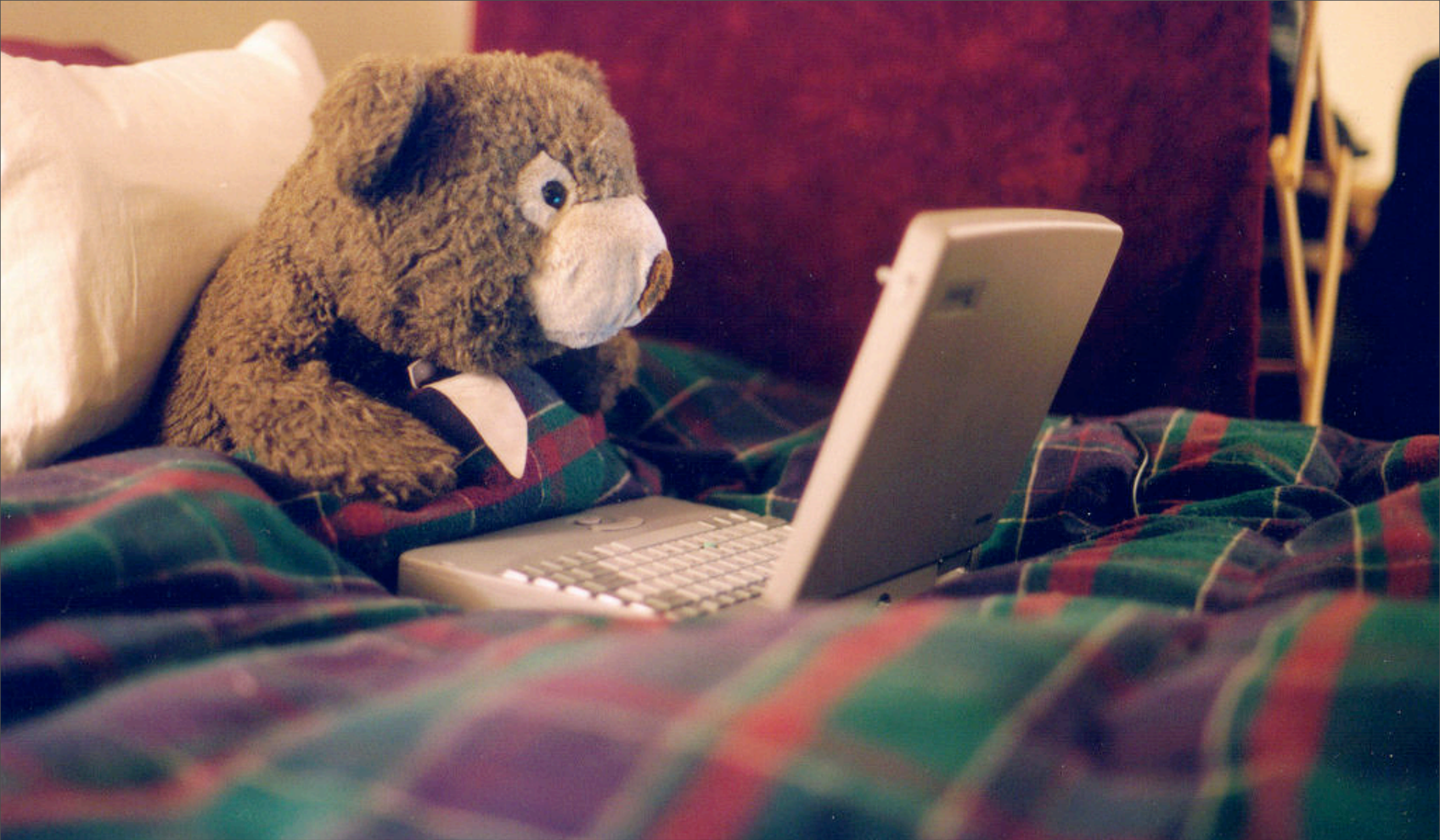What's missing in this model?

Is calm a defining feature of Ubicomp?

Thought questions?

What's missing in this model?

Is calm a defining feature of Ubicomp?

Unremarkable Computing

Tolmie, Pycock, Diggins, MacLean, & Karsenty

What does it mean to be invisible?

Method

Method

Home is different from the office

Method

Home is different from the office

Ethnomethodologically-informed
ethnography

Method

Home is different from the office

Ethnomethodologically-informed ethnography

"focuses on the ways in which people make sense of their world, display this understanding to others, and produce the mutually shared social order in which they live."

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Live in people's houses

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Think carefully about what stuff means

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Lucy Suchman

Anthropologist

Scenario 1

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Christine and Louise are next door neighbors. Both mums with school kids.

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Lessons learned:

Some activities have meanings that are used to coordinate routines

Meanings are very specific to the participants in a specific time and place (context-specific)

Shared understanding exists so participants don't have to explain anything.

Comments?

Scenario 2

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Mom works in morning, hears alarm clock, doesn't comment about it, and then tells her kids to wake up.

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How can you design if reactions are unpredictable?

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Implications for Ubicomp

How to design something "so embedded, so fitting, so natural"

Invisibility: perceptual invisibility or "invisibility in use"

Fit into the routine or action

Don't do it for the user, let them feel like they did it themselves

Augment the action not the artifact (necessarily)

More implications

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Support routines

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Support routines
    BUT... it's context sensitive and SOCIALLY CONSTRUCTED

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   Is there a real activity here that needs supported? (the scenario people
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Support routines
    BUT... it's context sensitive and SOCIALLY CONSTRUCTED

Questions

    Is this AI-complete? (Awww, Crap)

    Can end-user programming save the day? (or just ruin it)

    Is there a real activity here that needs supported? (the scenario people seem happy without ubicomp)

    Maybe we shouldn't look at normal, boring people. (How about some Fruit Loops?)