Videoconferences and streaming used in the scientific community

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16.04.2002

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Menu:

- Precense (being in a place)
- Being (and doing)
- Flow (feelings when acting)
- Acting in an AccessGrid

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Credits:

- Mr Jari Takatalo
  - Masters Theses (2002): "**Being and acting in virtual environments**".
  - The Department of Psychology at the University of Helsinki
  - Center for Scientific Computing.

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I will continue

- from my lecture during NORDUnet2000 in Helsinki.
- http://www.csc.fi/nordunet2000/program.phtml.
- With a focus on being real and/or virtual.
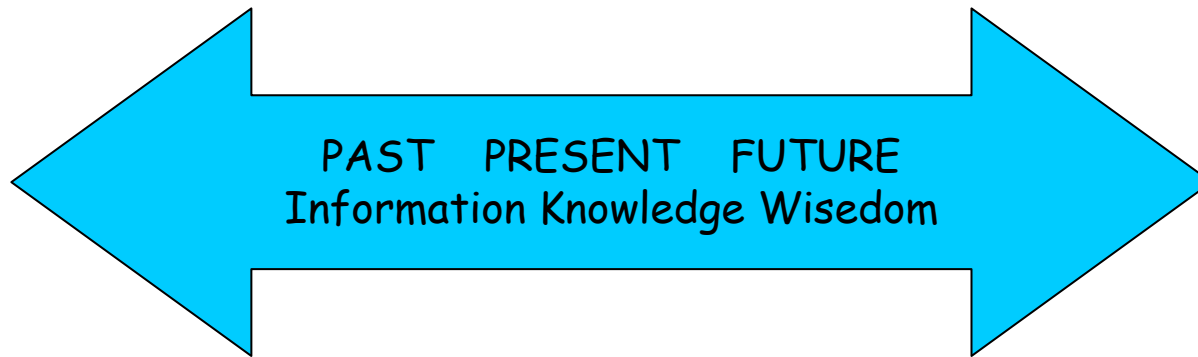
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Evolutionary roots of being present in a current environment: survival (Reeves & Nass 11)

The ultimate purpose of perception: searching potential threat and guiding action.

In everyday life the conscious mind may drift around

PAST   PRESENT   FUTURE
Information Knowledge Wisedom

and a 100% presence is only required in special situations, e.g. facing a novel situation, performing a difficult task.

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Basic problem is "being there" in a mediated environment.

- Possible solutions and attempts:
  - Using chemicals to separate mind and body. Quite unhealthy and not very efficient.
  - Teleportation. Not very well established procedures.
  - Videoconferencing and video streaming.
- What is the level of presence needed in VC?
- Difference between personal and group presence?

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Presence - Being in a place

Explication statements:

- State or fact of being present, as with others or in a place.
- Present meaning being, existing or occurring at this time or now (Webster's Encyclopedia Unabridged Dictionary of the English Language).
- (Lombard) Presence (shortened version of telepresence): Perception or a psychological state in which part or all of an experience is generated by human-made technology [the role of evolution?].
- Broader concept of presence (different than presence/telep.): Natural way of perceiving physical world and providing a sensation of being present in our environment.
- Spatial / physical Presence, a sense of physical space, perceptual immersion, transportation, a sense of being there
- Sensory presence, perceptual realism, naturalness, ecological validity
- Engagement, involvement, psychological immersion.

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Personal presence as three components

- Presence as realism (sensory presence and naturalness)
- Presence as transportation (spatial presence)
- Presence as immersion (involvement and engagement)

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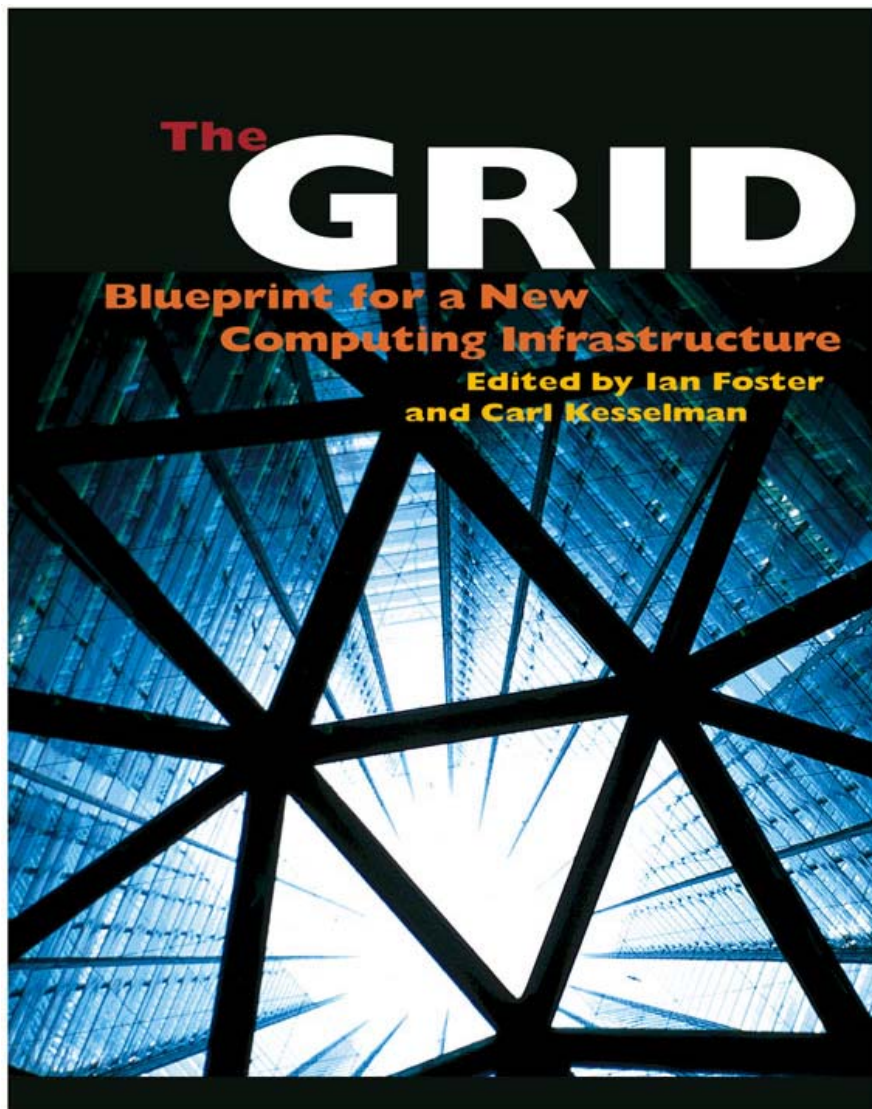# Characteristics of a virtual world

- Geography, the metaphor of connected places.
- Identity, the way we present ourselves.
- Communication and awareness mechanism to suit styles and groupings.
- Community, to develop for the inhabitants

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B.A. Nardi & V.L. O'Day
Information Ecologies, 1999

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Different Grids

- people collaborating over distances in meetings, seminars, and other user-oriented sessions via access points, or nodes, that comprise the **Access Grid**

- computers, scientific instruments, and other technologies that make up a scientific problem solving environment, called the **Computational Grid**

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Ensuring Persistent Electronic Spaces

- "The Access Grid project is one of several projects in our Active Spaces research program, which is exploring possible workspace environments. The Active Spaces program is developing a new application environment metaphor "beyond the desktop": large and small proactive and reactive systems in which users can both "think" and be."
  - Access Grid Web Site

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What is Access Grid?

- The Access Grid (AG) is the ensemble of resources that can be used to support human interaction across the grid.
- It consists of multimedia display, presentation and interactions environments, interfaces to grid middleware, interfaces to visualization environments.

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cont...

- The Access Grid will support large-scale distributed meetings, collaborative work sessions, seminars, lectures, tutorials and training.

- The Access Grid design point is group to group communication (thus differentiating it from desktop to desktop based tools that focus on individual communication).

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Presence through videoconferencing

Group interaction
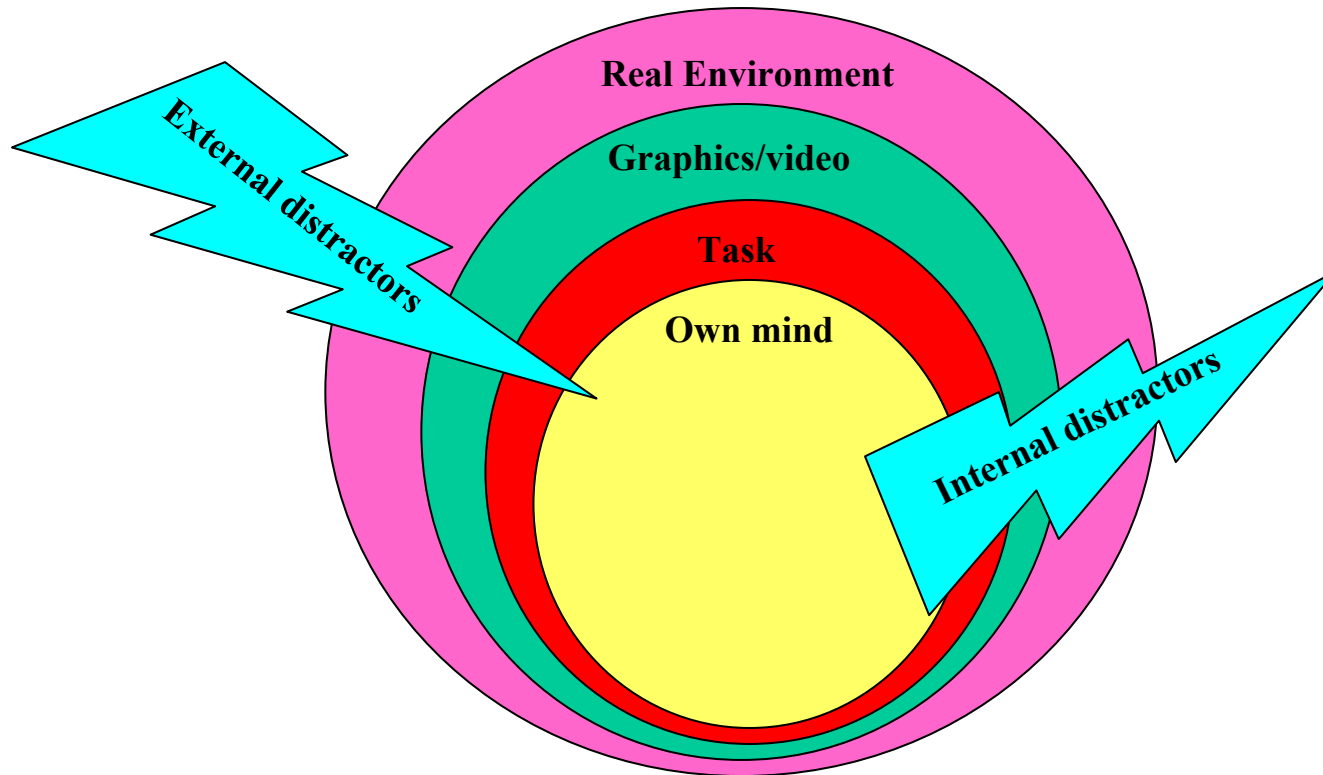

Conference room

PC desktop

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Is perception different from action ?

- Actual and virtual presence are quite distinguishable ==> by suppressing disbelief we can experience presence in an environment that is not real (by way of being caught up in reading for instance.)

- Reality is not something fixed, we are constantly changing our reality through our actions.
- Presence is tantamount to successfully supported action in an environment.
- The reality of experience is defined relative to functionality, rather than to appearance

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Where is the attention?

Real Environment

Graphics/video

Task

Own mind

External distractors

Internal distractors

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Access Grid Session
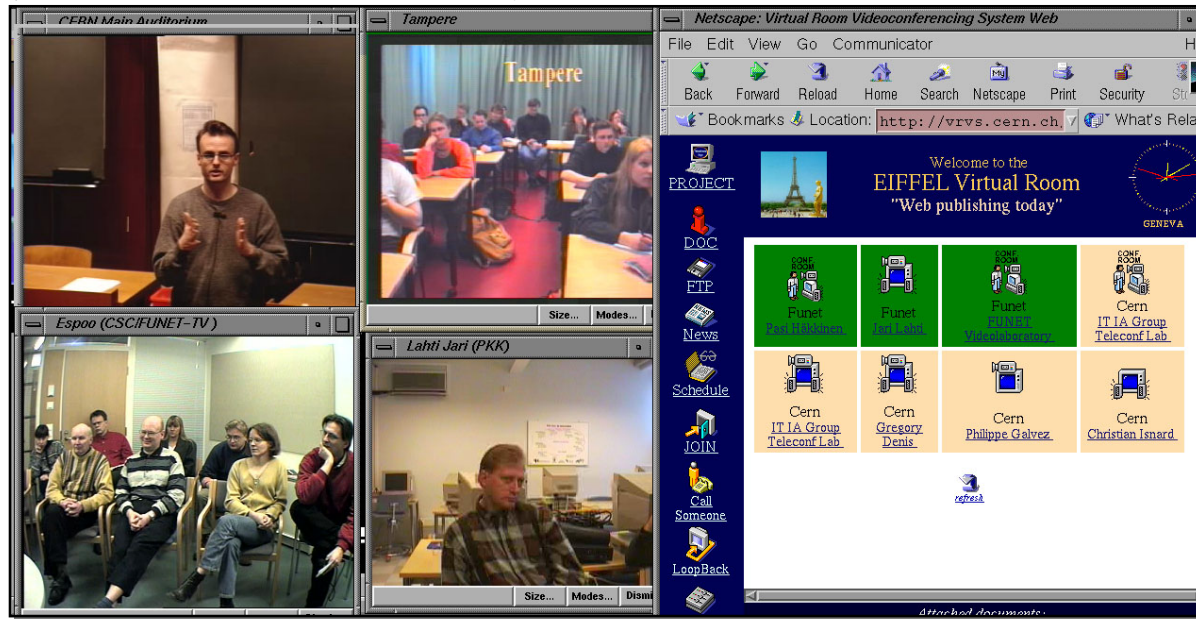

Presence in real world is a basic state of consciousness, a stable feature in of our awareness, that does not change continuously.

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Web University project

http://webuniversity.web.cern.ch/webuniversity/

When processing mediated stimuli emotions play a
a strong role in user experience like the quality of
interface, media content and actual task.

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Replace virtual world with vc...

- Spatial: Somehow I felt that the virtual world surrounded me.
- Presence:
  - I felt like I was just perceiving pictures.
  - I did not feel present in the virtual space.
  - I had a sense of acting in the virtual space, rather than operating something from outside.
  - I felt present in the virtual space.
- Involvement:
  - How aware were you of the real world surrounding while navigating in the virtual world (i.e. sounds, room temperature, other people, etc.)?
  - I was not aware of my real environment.
  - I still paid attention to the real environment.
  - I was completely captivated by the virtual world.
- Realness:
  - How real did the virtual world seem to you?
  - How much did your experience in the virtual environment seem consistent with your real world experience ?
  - How real did the virtual world seem to you?
  - The virtual world seemed more realistic than the real world.

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Presence - Experience

- Presence is a property of an individual and varies across people and time.

- It appears that presence is a continuous rather than dichotomous variable. Background feeling originating from nce in the real world.

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Presence - Concepts

- Spatial / physical Presence, a sense of physical space, perceptual immersion, transportation, a sense of being there (construction)

- Engagement, involvement, psychological immersion (suppression)

- Sensory presence, perceptual realism, naturalness, ecological validity

- "Medium as social actor"

- "Co-presence" and "transportation: shared space".

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Being and doing

- **Interaction**: an interactive system permits the user influence, the form and/or content of the mediated presentation or experience
  - Speed: The speed that the system responses to the actions of the participant
  - Range: the more holistic (all-inclusive) the interaction the greater the presence
  - Mapping: Mapping between the user input and the type of medium response (head tracking vs. hand tracking in a search task)
- Exploration of the environment
- Environmental interaction   Action   Perceived skills and challenges of the situation
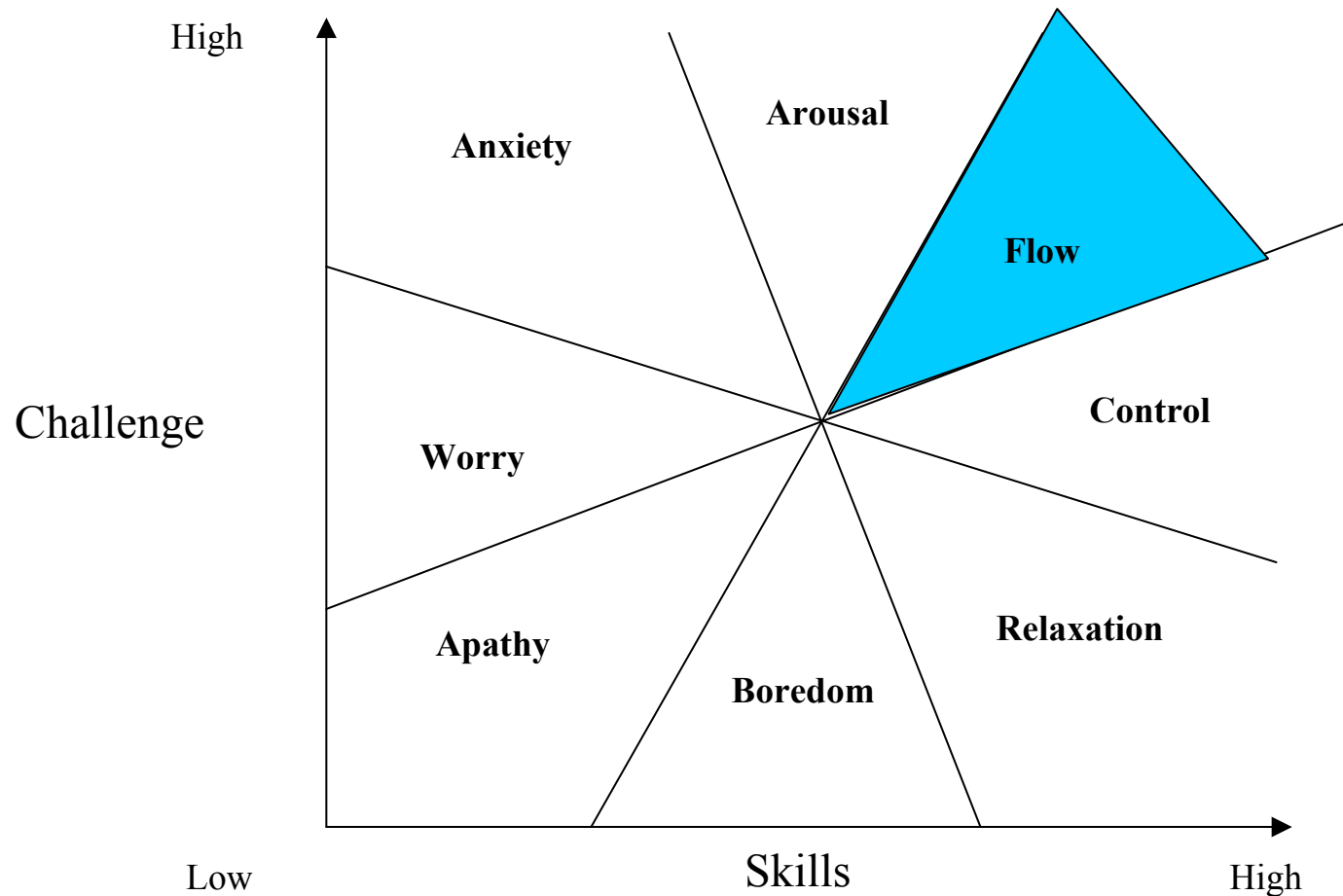
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Flow

- (Csikszentmihalyi, 1977-)
- The holistic sensation that people feel when they act with total involvement.
- Begins only when challenges and skills are above a certain level, and are in balance.
- Centering of attention, loss of self-consciousness, unambiguous feedback to a person's actions, feelings of control over actions and environment.
- A state in which people are so intensely involved in a activity that nothing else seems to matter; the experience itself is so enjoyable that people do it even at great cost, for the sheer sake of doing it.
- Cognitive evaluation process of the environmental challenges and own abilities. Resembles the appraisal theories of emotion (e.g., Lazarus, 1991; Ellsworth & Smith, 1988)

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Eight channel flow model

High

Challenge

Low   Skills   High

Arousal

Anxiety

Flow

Worry   Control

Apathy   Relaxation

Boredom

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Challenges to meet

1. Clear distinction between subjective presence experiences and cognitive appraisals of the situation in terms of skills and challenges.

2. A sense of presence is a prerequisite for flow to occur, i.e., those experiencing presence are likely to experience flow, flow can not be experienced without presence but presence may be experienced without flow.

3. Interaction has an impact on presence.

4. High skills and challenges have an impact on flow.

5. Presence and flow are linked to positive outcomes from the virtual environment exposure.

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Presence in your pocket
Vic Viewer for Pocket PC
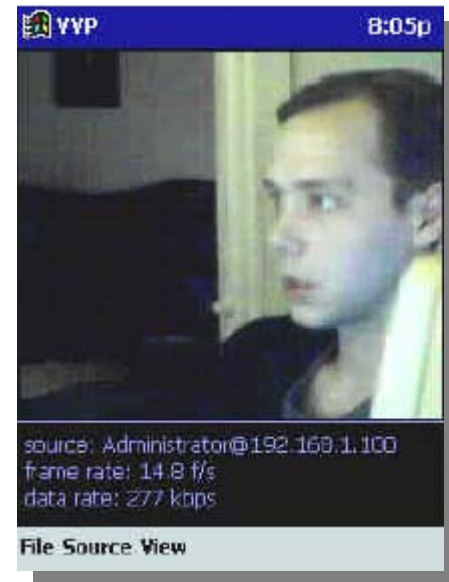
- Electronic Visualization Laboratory of the University of Illinois at Chicago
- http://www.evl.uic.edu/cavern/continuum/vvp/report.htm

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"Only drug dealers and software companies call their customers 'users.'"

- David Pogue's "Circuits" column
March 7 New York Times

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Thank you!

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