A fundamental issue with user interfaces is how to help users stay aware of information without being overly intrusive or distracting.

- From Sideshow: Providing Peripheral Awareness of Important Information. MSR-TR-2001-83

**Strategies**

**Polling interfaces**
- people repeatedly check or “poll” information
- e.g., visit the avalanche forecast site to see if conditions have changed

**Problems**
- easy to miss important events and critical updates
- memory burden: remember to poll, remember previous state
- excessive time and energy: have to find it, start it, navigate, etc.
  - partial solution: summarize results in one place

**Strategies**

**Alerts**
- intentionally interrupt person when something important happens
  - e.g., fire alarms, reminder windows, email updates...

**Problems**
- interruptions are also potentially distracting
- interface design:
  - decide how we interrupt people
  - decide when to interrupt people
  - decide if interruption is warranted given current context

**Peripheral awareness**
- fills our peripheral attention with information that envelopes us without distracting us
- works - we have innate ability to stay aware of peripheral things
  - e.g.,
    - the weather outside (if working by a window)
    - colleagues who are around
    - what others are doing...

**Problems**
- how do we create peripheral (or ambient) displays?
- how do we artificially find a balance between peripheral awareness and distraction?
What are notifications?

Information delivered to you about events
- 'You have mail'
- Ringing telephone
- Postits placed on your screen
- Upcoming events (ads) in public places...

Notifications vs Information
- attention-getting
- directed to you
- relevant to you
- small units
- attract attention, and you can optionally take action on it

Notification systems

Computer systems that attempt to deliver
- current, important information
- in an efficient and effective manner
- that can be queried further

Can come from various sources
Can be presented in many different ways

Examples

Email notifier #1
- permanently on screen
- graphical change of state
- sound

Email notifier #2
- permanently on screen
- animated state

Instant Messenger
- several cues
  - blinking, color,
  - popups
  - text descriptions,
  - actual contents...

Peepholes version 1
- graphical change of state
- sound (of someone typing)
Examples

Peepholes version 2
• fading images
• bar chart (motion in office)

Examples

Peepholes version 3
• video snapshots

Examples

Ticker tape (U Queensland)
• subscribe to messages
• appears as a marquee
• fades out over time
• animation, color, motion, temporary persistence...

Inspirations

Ticker tape (U Queensland)

Examples

CoffeeBiff (U Queensland)
• graphical change of state
• number (of people)
• cycles through names...
Examples

Physical but digital surrogates
- offload onto physical, peripheral display
- physically situated

Sideshow
designed to help people track pertinent, multiple sources of information

Sideshow
Current information on how the stock market is doing
There are 90 bugs in my bug database. 6 are high priority, 19 are medium priority, and 61 are low priority.
Current 5-day forecast for my region.
Snapshot of the traffic on the bridge I have to use to get home.
Map of the status of all the traffic in my region.
I can click the new button to add tickets to my sidebar.

Sideshow
1 have a meeting in 23 minutes
There are 6 unread and 10 total messages in my inbox.
2 of my buddies are online, 4 are online but unavailable, and 19 are offline.
Anoop is online (indicated by the icon and the picture of Anoop looking at me).
Gavin is online but unavailable (indicated by the icon and the picture of Gavin looking away from me).

Sideshow
Alerts
- fades in with summary of information
Sideshow

Tooltips
- quick detailed info access

Design principles
- make it always present
  - but at the periphery
- minimize motion
  - so it’s visually calm and not distracting
- make it personal
  - so it’s personally relevant
- support quick drilldown and escape
  - so people can retrieve highly detailed information and then quickly return to what they were doing
- make it scalable
  - so one can track many items (dozens?)

Notification Collage

Notification Server

Shared Dictionary

1.postit.text
1.name Mary
1.a.email mary@...
1.a.url www.c…