Presence is as Presence does

Robert Sparks

The Future of Presence
Internet Society – The Hague
October 10, 2008

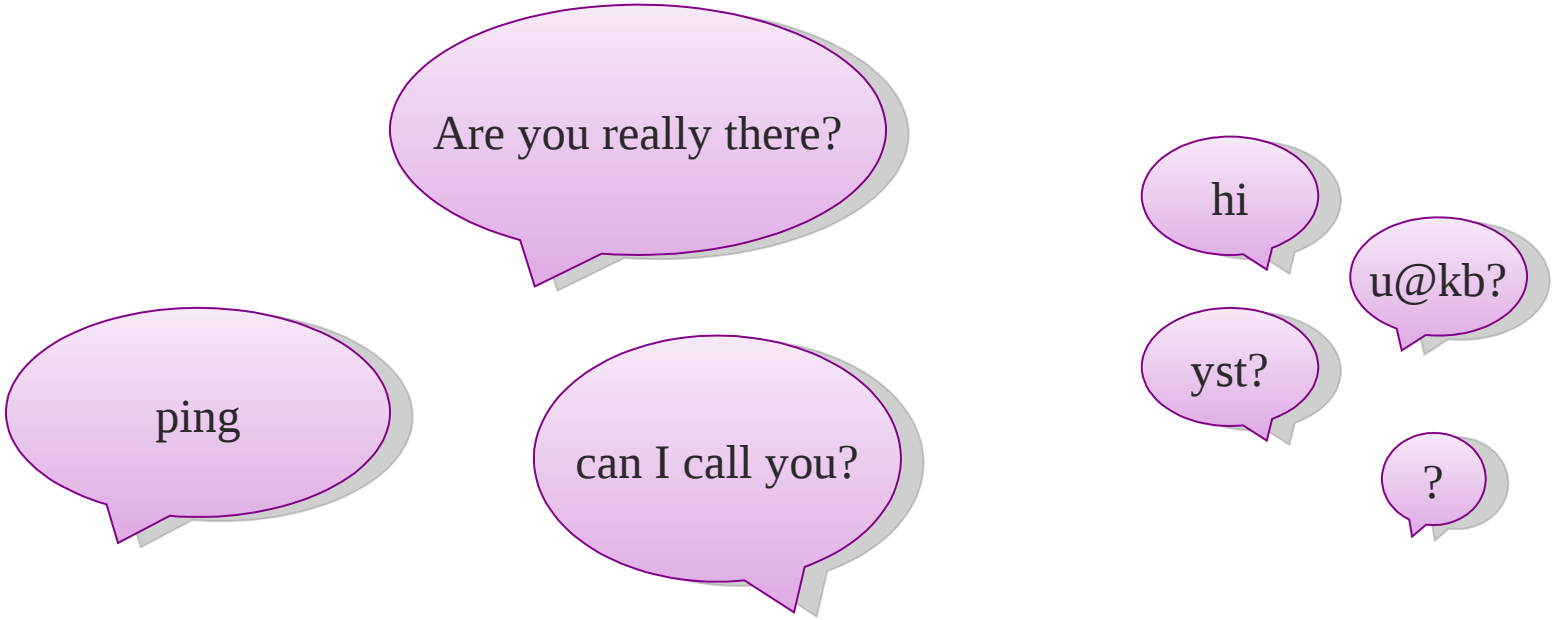
Two Primary Points

Presence is a component, not an application

Presence requires (more) automation to be useful

What is Presence?

- The dial-tone of the 21st century
  - Availability
  - Willingness to communicate
  - Current context for communication
- But almost every IM conversation starts out with “Hello?”



Are You Really There?

- Presence/IM is currently more like a dial-tone than we think
  - It describes readiness of the IM infrastructure
    - not the person
- Users develop their own social protocols around the actual IM communication
  - For rendezvous (yrt?)
  - For MDN (did you get my message?)

What is Presence?

- What many people call presence is really messaging
  - Status strings contain a wide range of content
    - Humor
    - Links to websites
    - Scores for sporting events
    - Plans for lunch
  - This is Not-So-Instant Messaging
    - 1-to-many (or 1-to-few)

What is Presence?

- Some applications frequently called out as examples:
  - Avoiding calls that are destined for voicemail
  - Choosing text over voice if your peer is watching a movie
  - Auto-conferencing a set of busy executives (or parents)
  - Raising an alert when you are near a friend
- These applications are not presence
- They *USE* data available from presence
  - And it's only part of their input

Imagine Answering "What is the Web?"

TEKELEC

- To someone who is not an Internet or Web professional
  - The Web is not HTML or HTTP
  - The Web is not content-management systems, wikis, forms, buttons, servers, resources, or mime-types
  - The Web is the thing you use on your computer to
    - Buy stuff
    - Watch videos
    - Read news
    - Do research
- They think in terms of applications that *USE* these protocols
- Presence is not a thing like the Web
  - It is not an application – it is used to *build* an application
  - It's more like what wikis are made of than it is like the web

Presence Requires Automation

- None of our example applications work well if we rely only on humans for input
  - Avoiding calls that are destined for voicemail
    - People don't expect to have to tell the network that they're busy
  - Choosing text over voice if your peer is watching a movie
    - How does the system know about this movie thing?
  - Auto-conferencing a set of busy executives (or parents)
    - How will these people all say "Ready!"?
  - Raising an alert when you are near a friend
    - People won't continually type "Ok – I'm at the mall now"

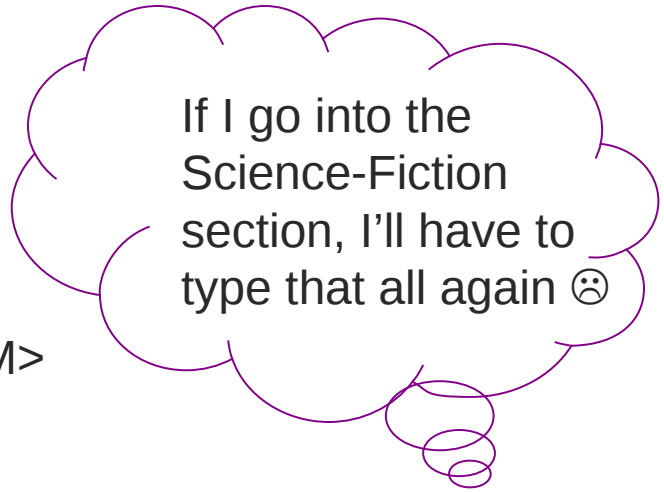
There's a Lot of Presence to Type

```
<?xml version="1.0" encoding="UTF-8"?>
<presence xmlns="urn:ietf:params:xml:ns:pidf" xmlns:rp="urn:ietf:params:xml:ns:pidf:status:rpid-status"" xmlns:p="urn:ietf:params:xml:ns:pidf:person"
          entity="pres:someone@example.com">
  <p:person><status><rp:mood><rp:happy/></rp:mood>
      <rp:activities><rp:activity>on-the-phone</rp:activity>
                    <rp:activity>meeting</rp:activity></rp:activities>
  </status></p:person>
  <tuple id="weoihff8">
    <status> <basic>closed</basic></status>
    <contact>sip:deskphone@example.com</contact>
  </tuple>
  <tuple id="9ansdi83">
    <status> <basic>open</basic></status>
    <contact>mailto:someone@mailservice.example.com</contact>
  </tuple>
</presence>
```

There's a Lot of Presence to Type

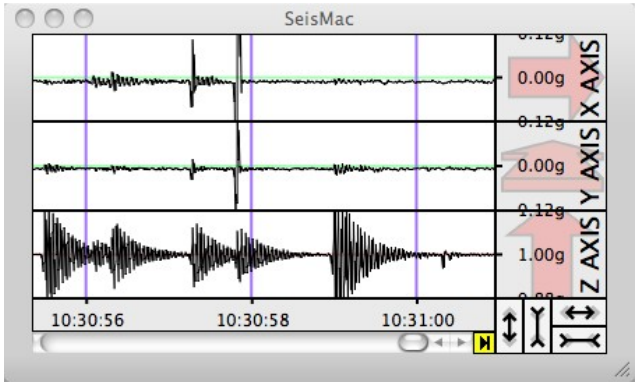
- From RFC 5139 (Revised Civic LO)

```
<civicAddress xml:lang="en-AU"
   xmlns="urn:ietf:params:xml:ns:pidf:geopriv10:civicAddr">
   <country>AU</country>
   <A1>NSW</A1>
   <A3>    Wollongong
   </A3><A4>North Wollongong
   </A4>
   <RD>Flinders</RD><STS>Street</STS>
   <RDBR>Campbell Street</RDBR>
   <LMK>
    Gilligan's Island
   </LMK> <LOC>Corner</LOC>
   <NAM> Video Rental Store </NAM>
   <PC>2500</PC>
   <ROOM> Westerns and Classics </ROOM>
   <PLC>store</PLC>
   <POBOX>Private Box 15</POBOX>
 </civicAddress>
```



Automating Input

- We already derive much from existing equipment
  - Phone in a call (or not registered to a network)
  - User keyboard idle
  - Mobile phone in a particular cell
- Ordinary devices are becoming much more aware
  - Where they are
  - How fast they're moving (or accelerating)
  - How loud it is
  - How bright it is
  - What the temperature/humidity are
  - Where the game controller is pointed



Automation Lets the Applications Work

TEKELEC

- Some of this automation can already be realized
  - Avoiding calls that are destined for voicemail
    - dialog-event, automated publication, hooking existing datastores
  - Choosing text over voice if your peer is watching a movie
    - IR and bluetooth beaconing, location databases
  - Auto-conferencing a set of busy executives (or parents)
    - Applications that periodically prompt: “Are you ready now?”
  - Raising an alert when you are near a friend
    - Tighter integration with GPS/AGPS

Automation Leads to New Applications

TEKELEC

- Tell me when my child leaves school
- React to big changes in phone use in the financial district
- Track “swarms” of devices
  - Cell-phones in cars, shopping centers, or trains
- Build popularity ratings in real time
  - Television shows, movies, music venues
- Find interest hotspots
  - Where are the fish biting?
- Control environmental systems
  - Notice when devices are above a given temperature
- Assist emergency responders

New Kinds of Applications May Emerge

TEKELEC

- Some may attempt to influence individuals or control populations
  - Proactively route traffic around congestion
  - Throttle down a teenager's car based on who's in it
  - Lead shoppers to opportunities, optimizing transaction probability in real-time
- Others may integrate further into real-time communication
  - Shock the speaker when the audience is all asleep
  - Pace an instructor based on some measure of group anxiety

Many Opportunities for Abuse

- Who gets to direct my child's driving or shopping?
- If we work together, we can make this theater get *really cold*.
- If someone knows I'm in a swarm, telling them about the swarm tells them about me!
  - I only want people to know what country I'm in
  - Someone sees me cross borders in a swarm that correlates with a train crossing.
  - The observers now not only know exactly where I am, but exactly *where I'm going to be* in the near future

Addressing the Abuse Potential

- Detailed security analysis resulting in a rich policy framework
  - common-policy
    - presence-rules
    - geopriv-policy
- This framework's richness comes with great complexity
  - Normal users won't understand it
  - Those that do won't continually update it
- Like obtaining presence data, obtaining presence *policy* needs automation

There's a Lot of Policy to Type

```
<cr:ruleset
        xmlns="urn:ietf:params:xml:ns:pres-rules"
        xmlns:pr="urn:ietf:params:xml:ns:pres-rules"
        xmlns:cr="urn:ietf:params:xml:ns:common-policy">
        xmlns:gp="urn:ietf:params:xml:ns:geolocation-policy">
        xmlns:ca="urn:ietf:params:xml:ns:pidf:geopriv10:civicAddr">
        xmlns:lp="urn:ietf:params:xml:ns:basic-location-profiles">
 <cr:rule id="a">
  <cr:conditions>
   <cr:identity> <cr:one id="sip:jean@estacado.net"/> </cr:identity>
   <cr:validity>
     <cr:from>2008-10-10T10:30:00.00+01:00</cr:from> <cr:to>2008-10-10T11:10:00.00+01:00</cr:to>
   </cr:validity>
   <gp:location-condition>
     <gp:location profile="civic-condition”> <ca:country>NL</ca:country> </gp:location>
   </gp:location-condition>
  </cr:conditions>
  <cr:actions> <pr:sub-handling>allow</pr:sub-handling> </cr:actions>
  <cr:transformations>
    <pr:provide-services><pr:all-services/></pr:provide-services>
    <pr:provide-persons><pr:all-persons/></pr:provide-persons>
    <pr:provide-devices><pr:all-devices/></pr:provide-devices>
    <pr:provide-activities>true</pr:provide-activities>
    <pr:provide-user-input>bare</pr:provide-user-input>
   <gp:provide-location profile="civic-transformation">
     <lp:provide-civic>city</lp:provide-civic>
   </gp:provide-location>
  </cr:transformations>
 </cr:rule>
</cr:ruleset>
```

Where Does Policy Come From Today?

- Very simple models – relying on consequences of other choices the users make
- Most of these reduce to a simple whitelist
  - Messaging
    - Only people on my list can send me messages
    - I send messages only to people I know
      - » Even when I use my “Presence” string to do it
  - Presence
    - Only people on my list can see my presence (I hope)
- These lists tend to reflect small, closed, groups of interest
- Experiments with only slightly richer models have had limited success
  - Partial availability
  - Invisible-mode

Automation is Necessary for Presence

- People will not directly enter context
- People will not directly enter moods
- People will always take the easiest option
  - They will default to a simple “all on”/”all off” pattern of managing their presence policy

Next Steps

- Automate, Automate, Automate
- Develop a better understanding of the use of Presence status-strings as a form of messaging
- Discover how to automatically adjust authorization policies in real-time
- Nurture new applications as they emerge
  - Focus first on those that leverage existing automation and have the simplest policy models

Some of this is standards-body work

Most is work for implementers

Summary

Presence is a tool for building applications, and not an application by itself

What it does is what defines it

The creation and maintenance of presence data and authorization policy must be automated for presence to reach its full potential

Contact Information

Robert Sparks
Principal Engineer

Office: +1-214-329-0494
Robert.Sparks@tekelec.com