

# Cloud Computing Leveling The Access Field

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# Overview

Accessibility Challenge Speech Opportunity Google Conclusion

**Accessibility**

**Challenge**

**Speech**

**Opportunity**

**Google**

**Conclusion**



# What Does Accessible Mean?



# Access Goals

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- Retain present level of access to functionality
- Increase reach by enabling wider access
- Wider access:
  - ◆ Bring within reach of more users
  - ◆ Enable access in more user contexts
  - ◆ Improve user effectiveness by enabling rapid task completion

**Important to go beyond the status-quo**



## (Content, UA, AT)

- Together determine overall user experience
- Content — Capture adequate semantics
- UA — Degrade gracefully
- AT — Bridge the gap



# The Access Challenge



# Web Apps: Advantages

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## Hosted Web applications enable:

- Easy deployment
- Light-weight user interaction
- Ubiquitous access to data
- Easy upgrades

Desktop access technologies do not fit this model.



# The Impedance Mismatch

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## Major shift in application deployment model

- Web Apps — The document *is* the interface
- Light-weight UI hosted in Web pages
- Current adaptive technologies assume desktop application model

## App model shift requires shift in AT.





# Consequences

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## When Web Apps And Desktop Screen-readers Collide

- Adaptive technology installed on client workstation
  - ◆ All of the disadvantages,
  - ◆ And none of the advantages!



# Ubiquitous Access

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## The Access Challenge

- Web promises anytime, anywhere access
- Equal access for users with special needs:
  - ◆ Email access at airport?
  - ◆ Edit/share information from a borrowed laptop?



# Building Spoken Feedback



# Building Speech Access

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- Identify *what* to speak
- Determine *how* to speak it
- Decide *when* to speak



# What To Speak

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- Rich markup for Web content
- Separate content from presentation
- Structure content to reflect its intent
- Add content annotations to provide smart navigation
- Identify *role* of content particles
- Expose current *state* via DOM properties

**Accessible Content = Clean Markup annotated with ARIA.**



# How To Speak

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- Enable rich spoken feedback
- Provide Web developers direct access to speech layer
- Enable rich auditory presentations of content

**Treat spoken output as a first-class citizen.**



# When To Speak

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## Speech is silver, but silence is golden!

- Event handlers implement web interaction
- Eventing determines *when* things change
- Attach handlers that produce relevant output



# The Access Opportunity





# Web Application Model

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- Data resides on the network
- Interaction resides on the client
- Network operations to synchronize data
- Browser widgets to create UI

**Shift away from monolithic applications**



# Web Adaptive Technologies

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## Adaptive technologies embrace, extend Web model

- AT dynamics no different from mainstream
- Web applications fulfill new needs
- Web AT access enables Web-based tools

## Evolve today's AT to meet tomorrow's needs



# The Access Opportunity

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## Separation of interaction from data:

- Go beyond *one size fits all* access
- Specialize user interaction to user's needs
- Multiple UIs can collaborate

## One size no longer need fit everyone



# New Adaptive Technologies

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## New opportunities for AT:

- A new market for consumer applications
- Custom services tailored to end-user needs
- Task-driven access tools

**This generation of AT will be user-driven.**



# Google Platform Access



# Google Platform Access

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- Chrome OS — Built-in access
- Android — Platform access present on all devices
- ChromeVox — Web Accessibility for desktop and mobile



# Chrome OS

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- C-A-z activates accessibility on the login screen
- Built-in ChromeVox provides complete Web Access
- Downloadable ChromeVis provides low-vision support
- Access technologies update with the rest of the platform!



# Android

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- Built-in TalkBack screenreader provides complete access
- Touch exploration on ICS enables complete access
- Open platform encourages innovation from third-party developers
- Open platform empowers user choice





# Android Web Access

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- ChromeVox enables Android Web access
- Activated when accessibility is enabled
- Supports modern Web standards including ARIA



# Conclusion



# Conclusion

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- Web applications force separation of user-interface from core application
- Makes development of multiple user interfaces affordable
- Opens up new opportunities for meeting user needs



# Watch Computing Take Off!

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