WEB 2.0:
Blind to an Accessible New World

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Google

Gmail
by Google BETA

Search Mail   Search the Web   **Show search options**
Create a filter

Compose Mail

Inbox (2270)
Starred ⭐
Chats 💬
Sent Mail
Drafts
All Mail
Spam
Trash

Contacts

─ Chat

Search, add, or invite

● cmurockstar
Set status here ▼

● Brent Hailpern
● david.tschirhart
● jnj
● Steven Benario
  Shove it CNN: htt...
⛔ pmathur2
  yay!!!! pitch detecti...
🟠 Tabitha Sotomayor...
🟠 Will Delanoy
⚪ Aaron Weiner
⚪ agutie01

Options▼   Add Contact

─ Labels

Edit labels

─ Invite a friend

Give Gmail to:

Fool.com: The Motley Fool - **Today's 5-Star Movers** - 4 hours ago   Web Clip < >

| Archive | Report spam | Delete | Move to ▼ | Labels ▼ | More actions ▼ | **Refresh** | 1 - 50 of 4019 Older › Oldest » |

Select: All, None, Read, Unread, Starred, Unstarred

☆	me, Joel (4)	Not going to be able to go - Come soon!! - Josh Joshua Hailperm Graduate Stude	8:52 am
☆	Netflix Receiving	We've received: Star Trek: Deep Space Nine: Season 6: Disc 2 - To make sure yo	7:14 am
☆	Google Alerts	Google Alert - bridget and the j-boys - Google Web Alert for: bridget and the j-boy	4:06 am
☆	Google Alerts	Google Alert - joshua hailpern - Google Web Alert for: joshua hailpern Music News	12:44 am
☆	Marina Danilevsky	Fwd: hotels in Barcelona - Forwarded message From: Harry Danilevsky <gariki@g	Mar 29
☆	me, lauras (4)	Re: Letters for Fellowship - Only slightly. I'm ready to go back. ;) Thanks for askin 📎	Mar 28
☆	Joel Schwitzer	Out of Office AutoReply: Massages - Thank you for your e-mail. I am out of the of	Mar 28
☆	lauras	out of office - I will be out of the office and unable to regularly respond to e-mail u	Mar 28
☆	Netflix Shipping	For Sat: Dead Like Me: Life After Death - To make sure you get your Netflix emai	Mar 27
☆	Netflix Receiving	We've received: Novocaine - To make sure you get your Netflix emails, add discsh	Mar 27
☆	YouTube Service	Subscription Update - March 26, 2009 - YouTube help center	e-mail options	rep	Mar 26
☆	Netflix Shipping	For Fri: Star Trek: Deep Space Nine: Season 6: Disc 2 - To make sure you get yo	Mar 26
☆	Andrew, me (2)	once you're in the real world - could be a great job.... gotta gradumacate first -Jos	Mar 26
☆	me, Mary (5)	Decissions due - well since he never re-asked me... i am assuming he found it as	Mar 26
☆	Netflix Receiving	We've received: Star Trek: Deep Space Nine: Season 6: Disc 3 - To make sure yo	Mar 26
☆	me, Aaron (2)	2 More mix downs - After a quick pass: 1. There's a lot to like in Slide Down 2. Ho 📎	Mar 25
☆	me, Andrew (4)	Hour of Need - and there is drums -Josh Joshua Hailpern Ph … 📎	Mar 25
☆	Netflix Shipping	For Wed: Novocaine - To make sure you get your Netflix emails, add discship@ne	Mar 24
☆	me, Marina (2)	Chicago Plans - PLEASE READ - How about Second City? Very inappropriate top	Mar 24
☆	me, Lauren (5)	i still need a picture - we SHOULD hang out... On Tue, Mar 24, 2009 at 11:39 AM	Mar 24
☆	me, Marina (2)	Trashy trash trash trash - Heh, yea, I'd seen that.... pretty awesome On Tue, Mar	Mar 24
☆	Netflix Receiving	We've received: The Hudsucker Proxy - To make sure you get your Netflix emails	Mar 24
☆	me, Aaron (2)	the rain - I'm getting an idea for a high-reverb, low-end dropped, pad-chord type (📎	Mar 24
☆	tony, me (4)	taxes and education... - not sure. -Josh Joshua Hailpern Ph.D …	Mar 24
☆	me, Brent (2)	Re: question about camera - Of course you can call me. Whenever really. 914282 📎	Mar 23
☆	Netflix Shipping	For Tue: Star Trek: Deep Space Nine: Season 6: Disc 3 - To make sure you get y	Mar 23
☆	Google Alerts	Google Alert - bridget and the j-boys - Google Web Alert for: bridget and the j-boy	Mar 23

audio sample of screen reader reading gmail
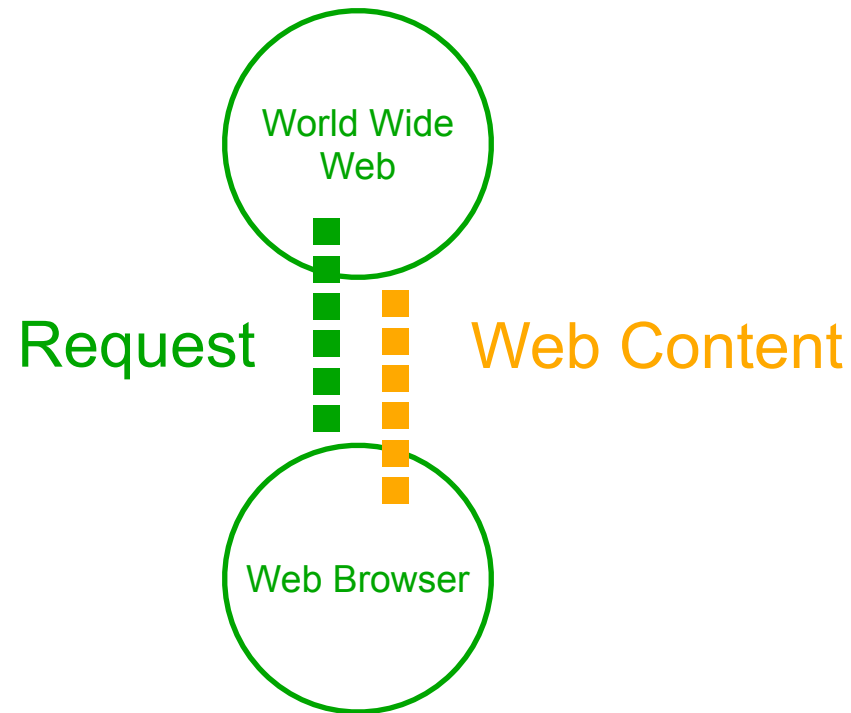
Screen Readers

Convert text, image, and HTML content to another media type

Visually Impaired

Unable to rely upon the visual and textual representation
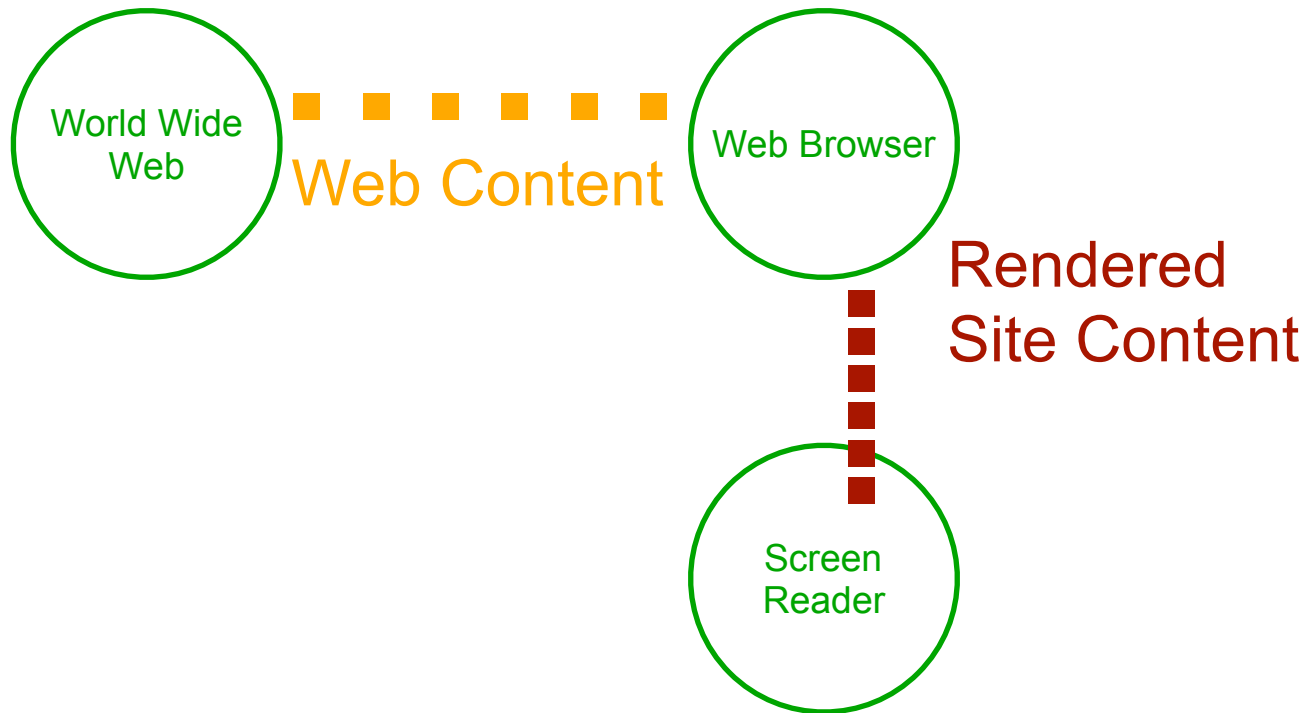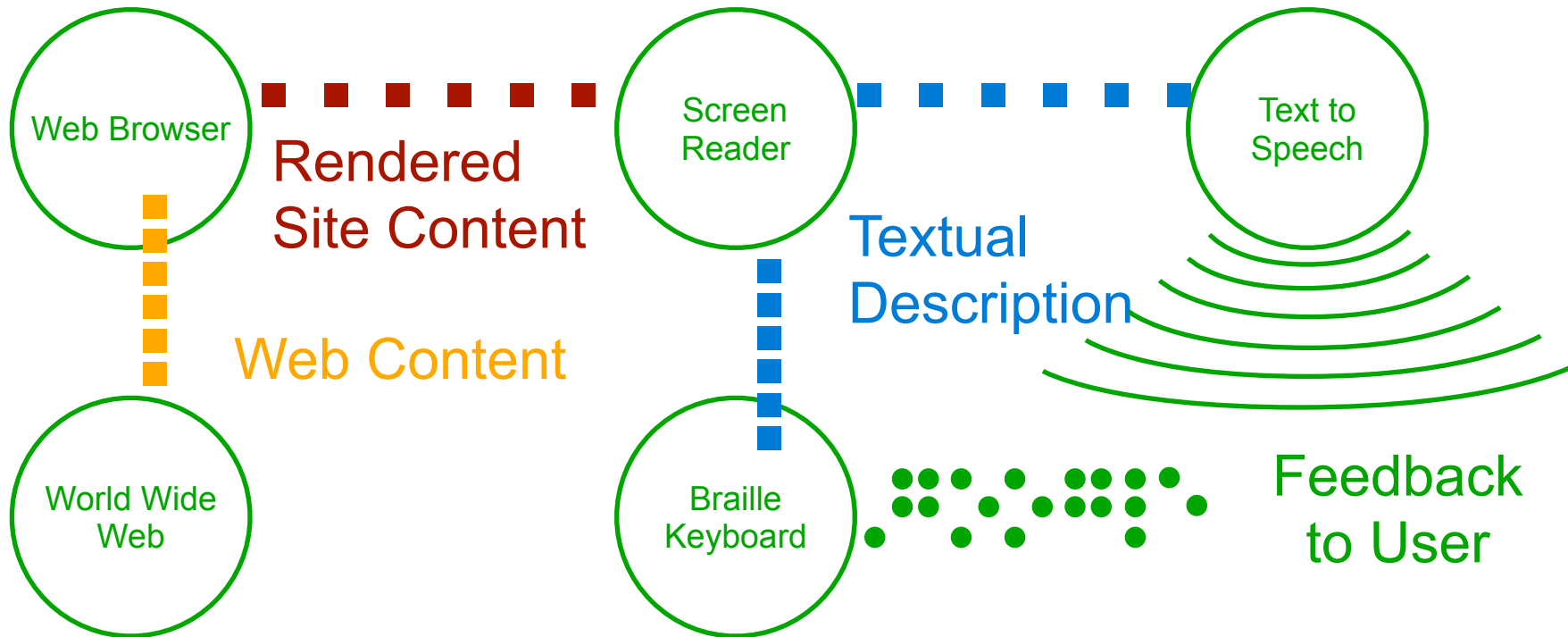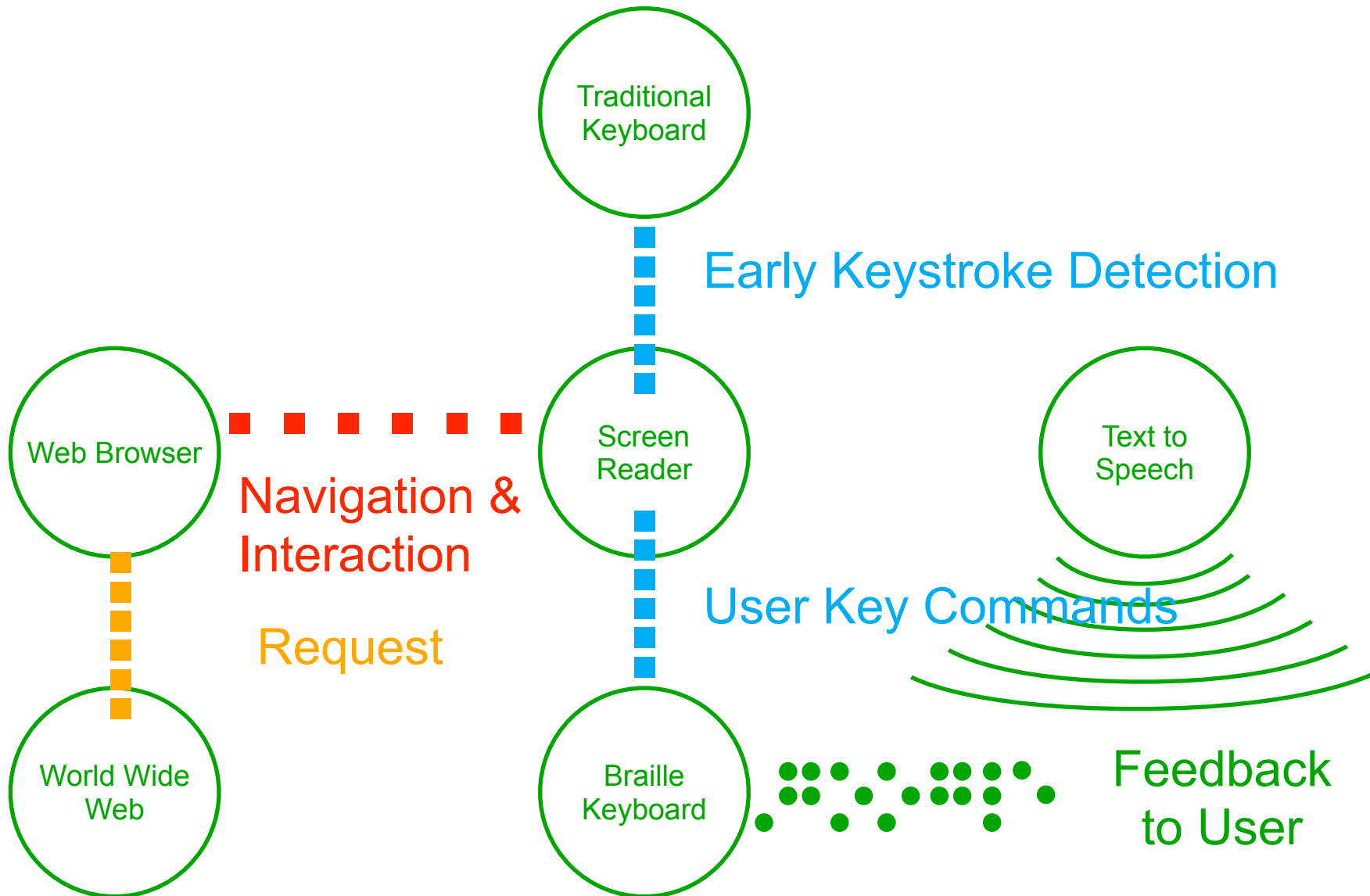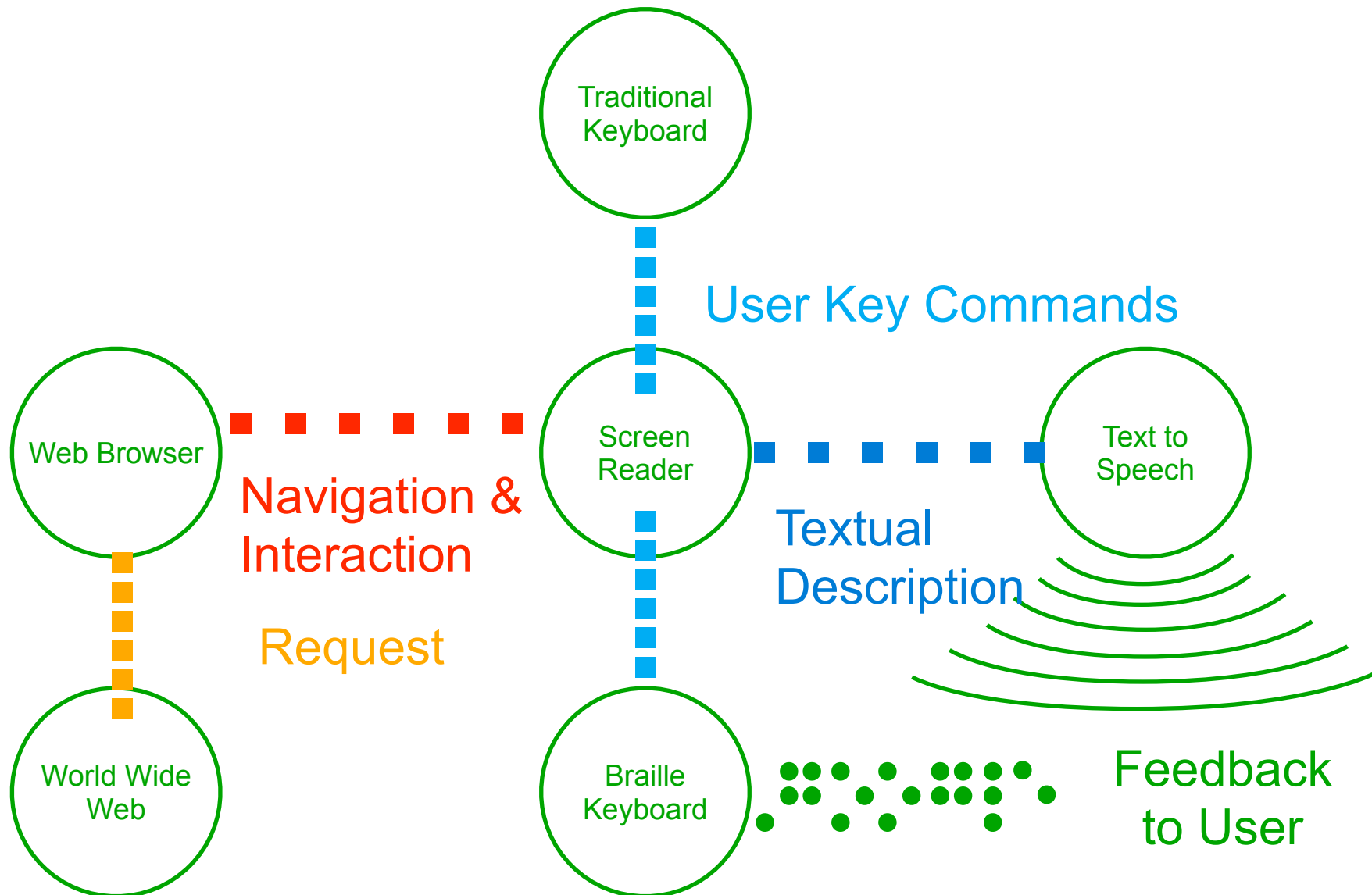
World Wide
Web

Traditional Keyboard

Early Keystroke Detection

Web Browser

Navigation & Interaction

Request

Screen Reader

Text to Speech

User Key Commands

World Wide Web

Braille Keyboard

Feedback to User

Interaction	Virtual Cursor Mode	Forms Mode	PC Cursor Mode
Navigate between pages	●	●	●
Navigate within pages	●	○	○
Access to Form Elements	●	◐	○
Read & Reread Text	●	○	
Text Input		●	

● Full Support　◐ Partial Support　○ Minimal Support

Scenarios

1. Check Email

2. Open and Read Newest Message

3. Reply/Compose a New Message

Scenarios and Discussion from 17 user interviews & observation of use

Alice: Traditional Web Content

Action	Feedback	Screen Reader Mode
Launches Gmail	Reads Site	Virtual Cursor

Check For New Mail

Action	Feedback	Screen Reader Mode
Press T: Table	Reads Table	Virtual Cursor
Ctrl + Arrows	Reads Rows/Cells	Virtual Cursor

Open & Read Email

Action	Feedback	Screen Reader Mode
Ctrl + Arrows	Alerts Link	Virtual Cursor
Enter	Announces Pageload	Virtual Cursor
'P' and Arrows	Reads Text	Virtual Cursor

Compose Email

Alice: Traditional Web Content

Action	Feedback	Screen Reader Mode
Insert + F7	'Links List'	Virtual Cursor
Arrows	Reads Links	Virtual Cursor
Enter	Announces Pageload	Virtual Cursor

Input Text

Action	Feedback	Screen Reader Mode
h/2 key	Reads H2 Headers	Virtual Cursor
Enter	'Forms Mode Active'	Forms Mode
TAB	Reads form titles	Forms Mode
Enter	Announces Pageload	Virtual Cursor

Summary: Traditional Web Content

Action	Feedback	Screen Reader Mode
Launches Gmail	Reads Site	Virtual Cursor
Press T: Table	Reads Table	
Ctrl + Arrows	Reads Rows/Cells	
Ctrl + Arrows	Alerts Link	
Enter	Announces Pageload	
'P' and Arrows	Reads Text	
Insert + F7	'Links List'	
Arrows	Reads Links	
Enter	Announces Pageload	
2 key	Reads H2 Headers	
Enter	'Forms Mode Active'	Forms Mode
TAB	Reads form titles	
Enter	Announces Pageload	Virtual Cursor

Alice: Web Applications

Action	*Feedback*	*Screen Reader Mode*
Launches Gmail	Reads Site	Virtual Cursor
	Check For New Mail	
Press T: Table	Reads Tables...	Virtual Cursor
j + k	Screen Reader Keys	Virtual Cursor
	virtual cursor off	PC Cursor Mode
j + k	...	PC Cursor Mode
	virtual cursor on	Virtual Cursor

Alice: Web Applications

Action	Feedback	Screen Reader Mode
Insert + F7	'Links List'	Virtual Cursor
TAB	Iterate elements	Virtual Cursor

Read That Email

Action	Feedback	Screen Reader Mode
Enter	…	Virtual Cursor
Enter	'ERROR'	Virtual Cursor
Ins + Pg Dwn	reads entire page	Virtual Cursor
'P' and Arrows	Reads Text	Virtual Cursor

Alice: Web Applications

Action	*Feedback*	*Screen Reader Mode*
	Write an Email	
Insert + F7	List of Links	Virtual Cursor
Arrows	Reads Links	Virtual Cursor
'P' and Arrows	Reads Text	Virtual Cursor
Enter	Nothing happens	Virtual Cursor
	virtual cursor off	PC Cursor Mode
c	*-announces pageload-*	PC Cursor Mode
	... no page read	PC Cursor Mode

Alice: Web Applications

Action	Feedback	Screen Reader Mode
	... *no page read*	PC Cursor Mode
	virtual cursor on	Virtual Cursor
Arrows or P	beeps & types	Virtual Cursor
Ins + Pg Dwn	reads entire page	Virtual Cursor
TAB	Iterate elements	Virtual Cursor
Enter	'Forms Mode Active'	Forms Mode
...	...	...
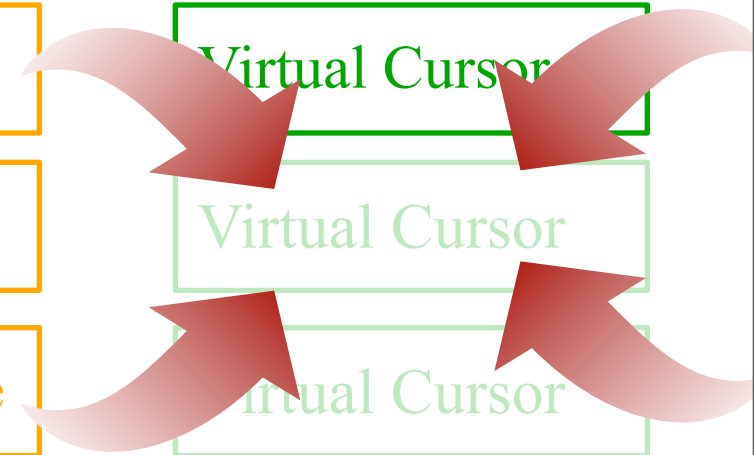
Summary: Web Applications

- Non-standard Keyboard Commands

- Custom Controls (e.g. decorated links)

- Forced Focus Shifts

- Forced Text Input

- DOM Changes

- State

- DIV based layout/organization

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Interaction	Virtual Cursor Mode	Forms Mode	PC Cursor Mode
Navigate between pages	●	●	●
Navigate within pages	●	○	○
Access to Form Elements	●	◐	○
Read & Reread Text	●	○	
Text Input		●	

Summary: Web Applications

- Non-standard Keyboard Commands

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Interaction	Virtual Cursor Mode	Forms Mode	PC Cursor Mode
Navigate between pages	●	●	●
Navigate within pages	●	○	○
Access to Form Elements	●	◑	○
Read & Reread Text	●	○	
Text Input		●	
Web Application Hot Keys			●
Forced Text Input			●
Forced Focus Shifts			●
Custom Controls			●

Solutions

It is all up to the Developer!

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- Alternate Audio Feedback

Solutions

It is all up to the Developer!

- Alternate Audio Feedback

- Workflow Design

	Reading Mode	Control Mode
Btwn Page Navigation	●	
Within Page Navigation	●	
Form Content	●	
Reading	●	
Textual Input	●	●
Dynamic Web Features		●
Additional Feedback		●

Solutions

It is all up to the Developer!

- Alternate Audio Feedback

- Workflow Design

- Use of Custom Controls

	Reading Mode	Control Mode
Btwn Page Navigation	●	
Within Page Navigation	●	
Form Content	●	
Reading	●	
Textual Input	●	●
Dynamic Web Features		●
Additional Feedback		●

Solutions

It is all up to the Developer!

- Alternate Audio Feedback

- Workflow Design

- Use of Custom Controls

- Minimal< cost to sighted users

- Easier than maintaining separate code resources

	Reading Mode	Control Mode
Btwn Page Navigation	●	
Within Page Navigation	●	
Form Content	●	
Reading	●	
Textual Input	●	●
Dynamic Web Features		●
Additional Feedback		●

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