Accessibility and web innovation.

HTML5 accessibility

A work in progress: March 2011

Summary

Poor +	Getting better	Poor	Poor -	Poor

Chris Heilmann - Funkas Tillgänglighetsdagar, April 2011
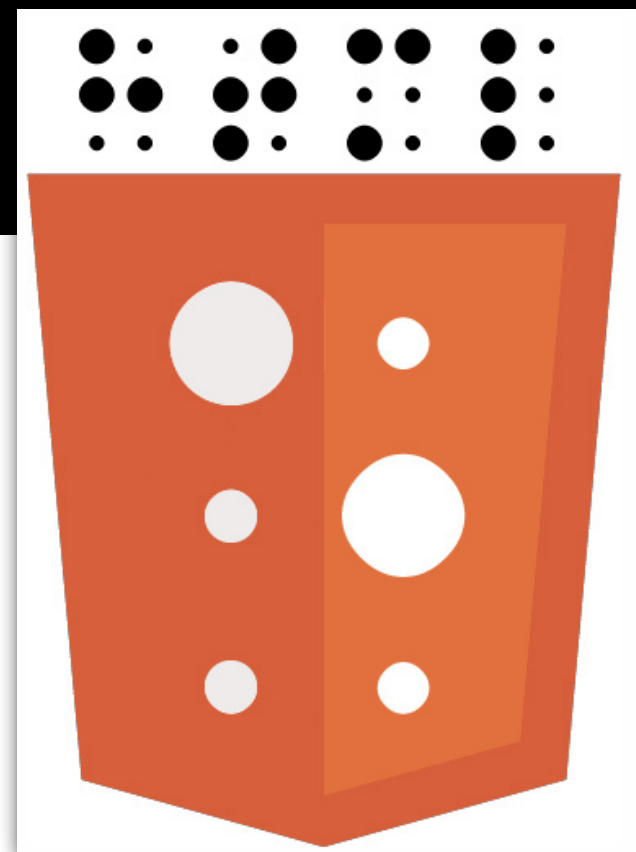
Hello there...

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#html5

Worries about accessibility

I am a bit worried about accessibility as a community and as an idea in web development.

Disconnect

WE'RE
ALL
WI-FI
READY

My main worry is that there still is a massive disconnect between bleeding edge web development and the accessibility world.

The big web **re-boot**.

Right now we are in the middle of reinventing the web. There are so many very cool things happening I would need two hours to tell you all about them.

Accessibility the **show-stopper**?

Accessibility, however is always considered a bit of a downer. When you start talking about accessibility, then you most likely hear something about "graceful degradation" or even the dead horse that is the "extra version for disabled users".

Accessibility tech is **falling behind**

This is to a degree understandable. The technologies we praise in the accessibility world are not up to speed with what is happening right now.

Figure and Figcaption

```html
<figure>
  <img src="bingresults.jpg"
      alt="screenshot of Microsoft Bing">
  <figcaption>
    Figure 1: A search result page
  </figcaption>
</figure>
```

Take for example the wonderful concept of caption and figcaption in HTML5. We finally have a way to connect an image with a caption – something every book layout for example needs.

ARIA needs IDs

```
<figure>
  <img alt="screenshot of Microsoft Bing"
      src="bingresults.jpg"
      aria-describedby="figurecap0">
  <figcaption id="figurecap0">
    Figure 1: A search result page
  </figcaption>
</figure>
```

In order to make it accessible though we need to add ARIA roles and give each caption a unique ID. This is not maintainable.

ARIA needs to move on, too...
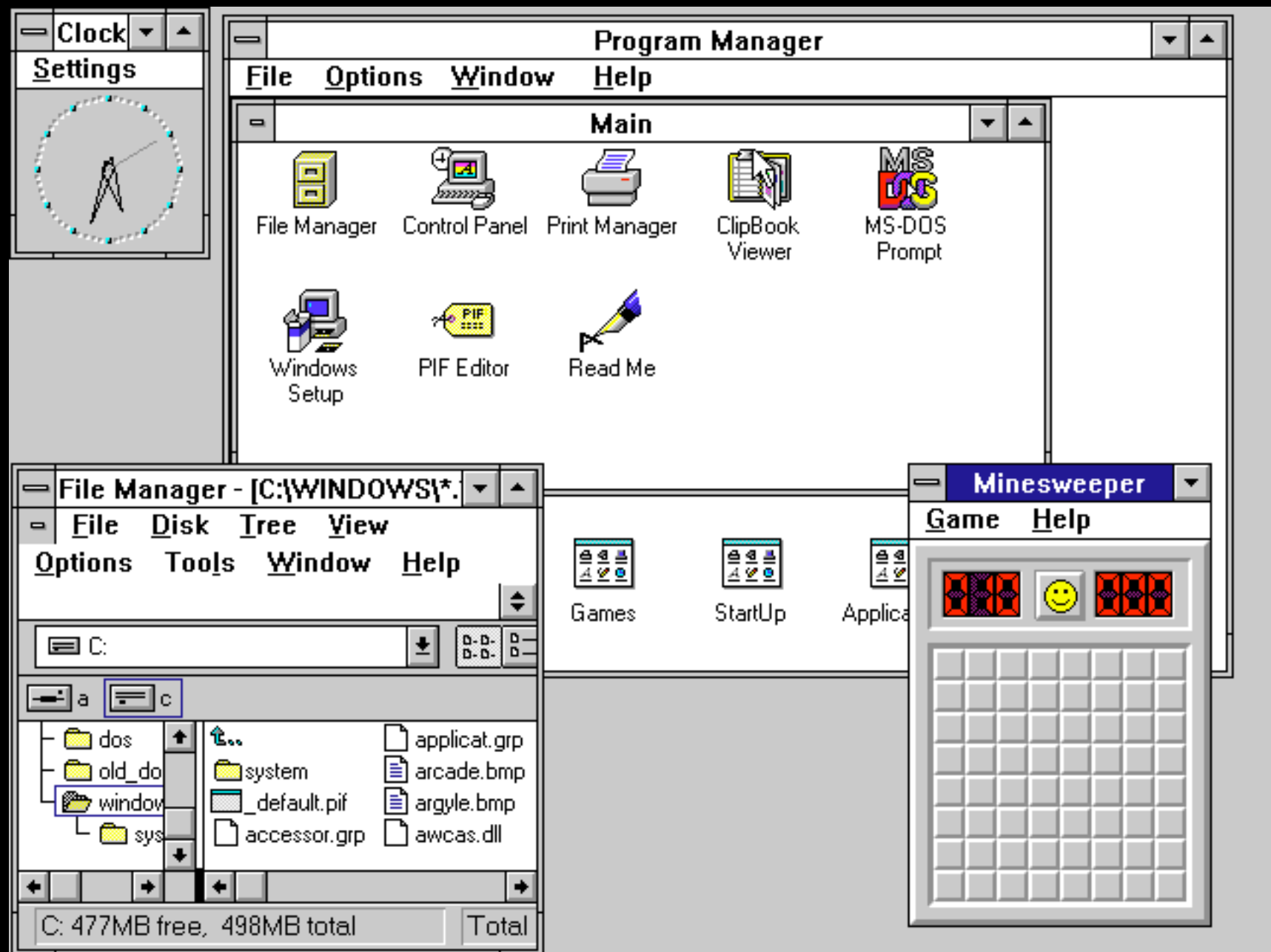
ARIA is amazing but frozen in time in interfaces we build in the 90ies. ARIA is a stop-gap solution, true, but if we don't make it easier to use, people will just not care.

You need to be accessible - **it is the law!**

Another issue is that accessibility is considered something that needs to be done to a product to make it legal to release – not to make it better or interesting.

Accessible products are **better** products

Fortune Not Found: Abort, Retry, Ignore?

And this is where we need to stand up and shout and make a change.

Those **crazy kids** and their ideas - **it'll never work!**

In general I get the feeling that the accessibility community as a whole is not as open to tech evolution as the rest of the web communities.

It is **new**! Everybody duck!

Every new thing is considered a massive step for all of us to take and if it doesn't work 100% it is discarded as "not ready for use yet" very quickly. After all it is much harder for a person with a disability to upgrade their environment, right?

Painting a **wrong image** of accessibiliy

This grumpy old men image of the accessibility community doesn't help us with winning the hearts and minds of the developer community.

Accessibility is **everywhere**!

If you take a look at the real world, we have a lot of accessibility enhancements (we fought for over the years) that do not only help people with disabilities but make it easier for everybody.

Lowering the kerb for people who want to like accessibility

Kerbs on roads have lower parts to allow for wheelchairs to get onto the sidewalk. This is also very useful for people with pushchairs or cyclists like me who like to celebrate their higher mobility in comparison to cars.

Digitising the world for conversion

OCR scanning allows us to turn printed matter which is deteriorating into formats that can be converted and archived much easier. It was invented for a blind person.

Structuring allows **conversion**

Google translate

Try a new browser with automatic translation.

Download Google Chrome

From: English ▼   ⇄   To: Swedish ▼   Translate

English to Swedish translation

You have beautiful eyes, I am not rich but I am honest...

Du har vackra ögon, jag är inte rik men jag är ärlig ...

◀) Listen

New! Click the words above to view alternate translations. Dismiss

◀) Listen

Google Translate for my: 🔍 Searches   🎬 Videos   ✉ Email   📱 Phone   💬 Chat   💼 Business

About Google Translate   Turn off instant translation   Privacy   Help

This can apply to anything – a text that is properly structured for assistive technology to understand is also easier to style and to index for a search engine or crawler. It can also – to a degree – be translated on the fly.

Being **loud and proud** and communicating across borders

The speaker and subsequently the phone was invented for someone who was hard of hearing. Now it allows us to get ourselves heard and to speak people world-wide. I work in London and work with people in 7 countries and 6 time zones. I love that freedom.

Don't just tell me, **show me**!
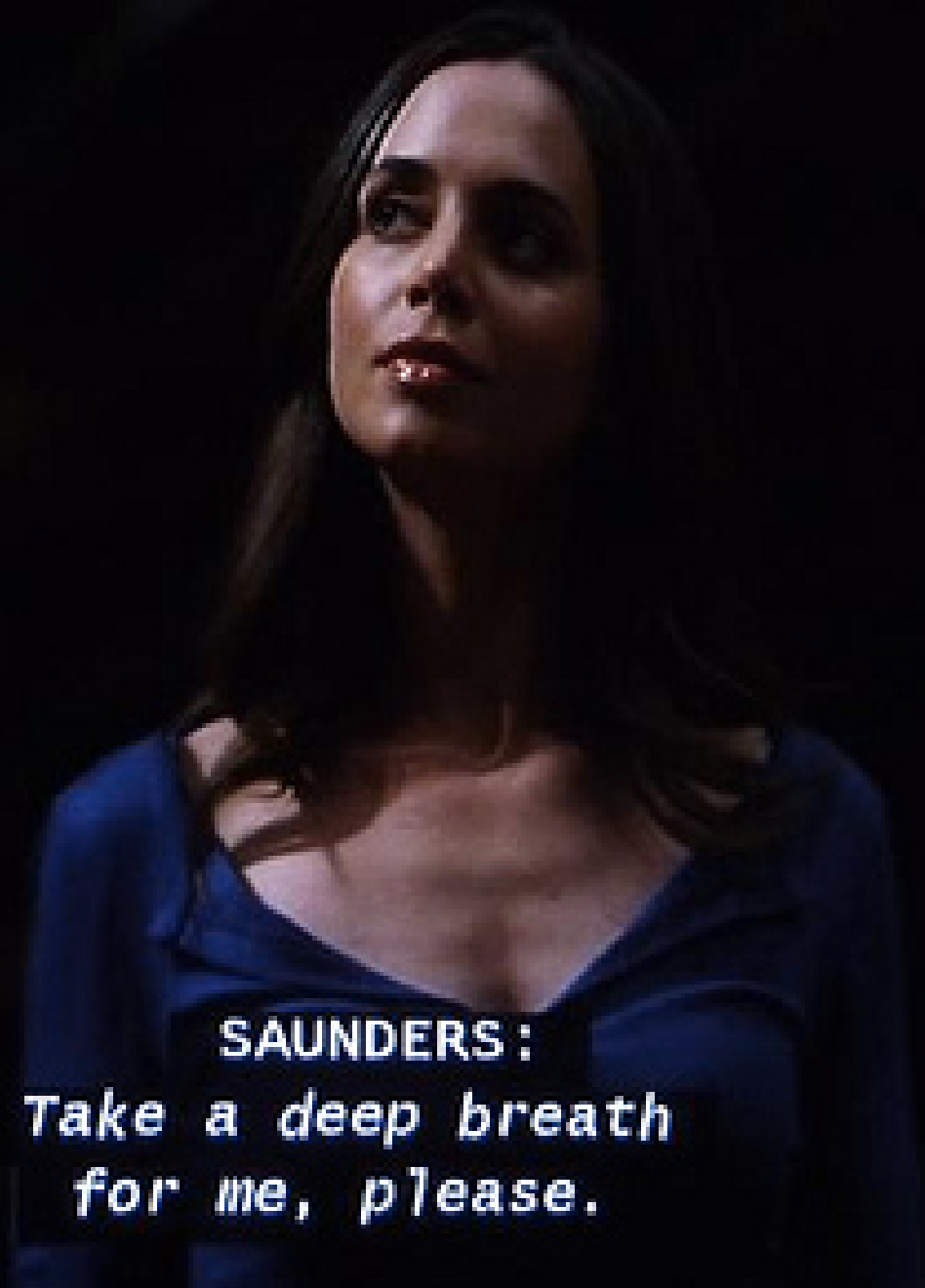
Closed captioning on TVs was originally meant to be for the hard of hearing. If you look at where it is used mostly right now you'll find that it allows people to follow a TV show without disturbing others. You find TVs with captioning turned on in gyms and in sports bars.

Right now, the web **doesn't work** that way.

On the web, however we still see accessibility as something that needs to be tacked on. Something that needs extra work and follows rules the normal developer doesn't understand.

Bad interfaces with **broken promises**

This leads to us building interfaces that look flashy and promise us some functionality but don't work. Like the buttons in the lift in Heathrow Airport un London. They are raised, they are big and they are easy to read – and they do exactly nothing.

Accessibilty enhancements as a **pacifier**

This is a very common thing in lifts though – there is the concept of a pacifier button. This is for example the button that closes the door – which normally does not make the door close faster. What it does though is give people the idea that they are in control and calms them down. After all being in a very small closed space can be scary

"we added stuff for accessibility!"

On the web a lot of developers add these kind of enhancements to their web sites to feel that they have done "something" for accessibility. Font resizing widgets for example.

If you stop thinking about building things for the disability community and you consider what it means to build these interfaces you will find that we are already in the middle of a renaissance of accessibility needs.

Mobile needs are accessibility needs.
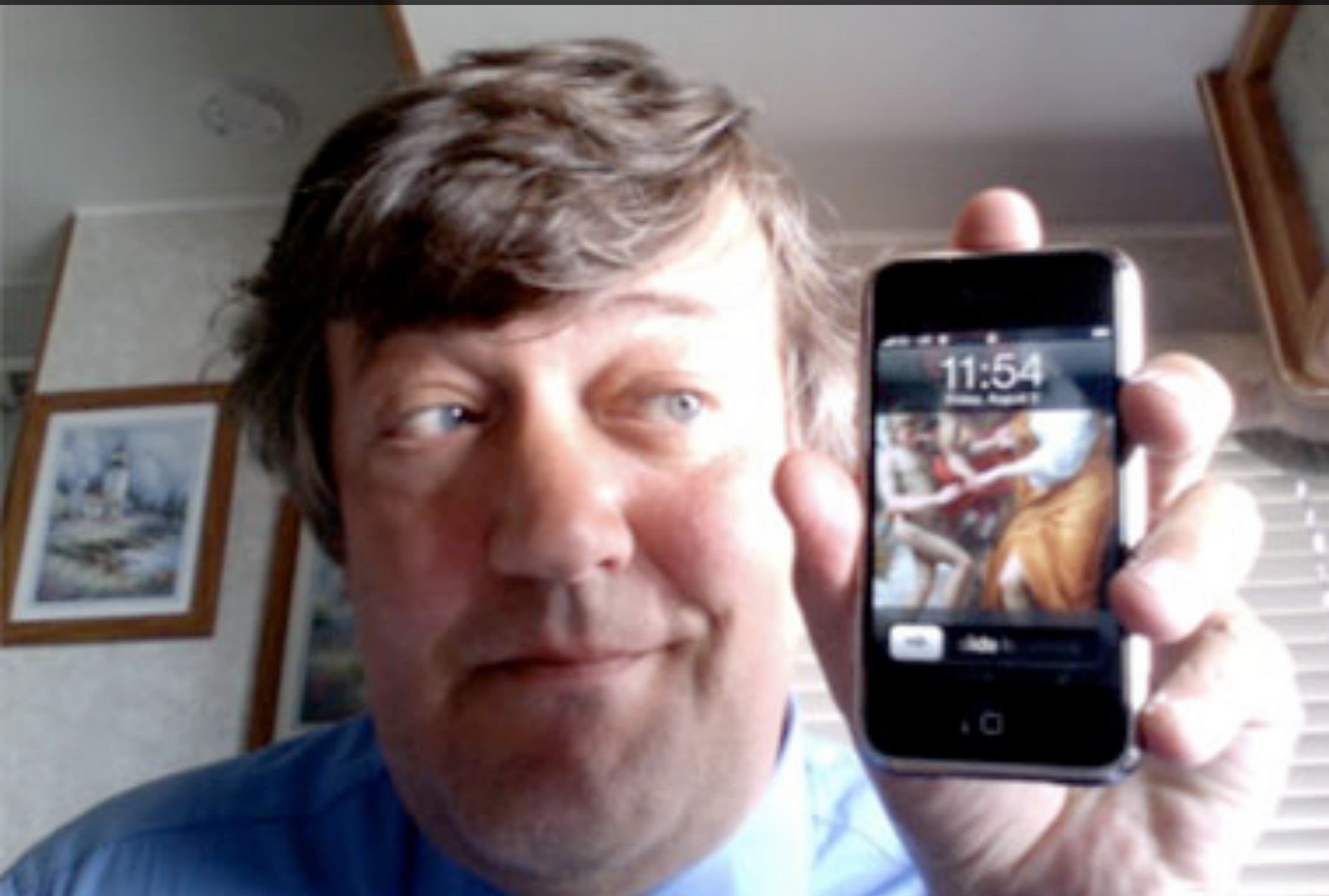
Mobile devices are hot and cool and they also spell the end of really bad interfaces we used in the past:

Structured documents can be redesigned

Properly structured documents are easy to redesign for different screen sizes.
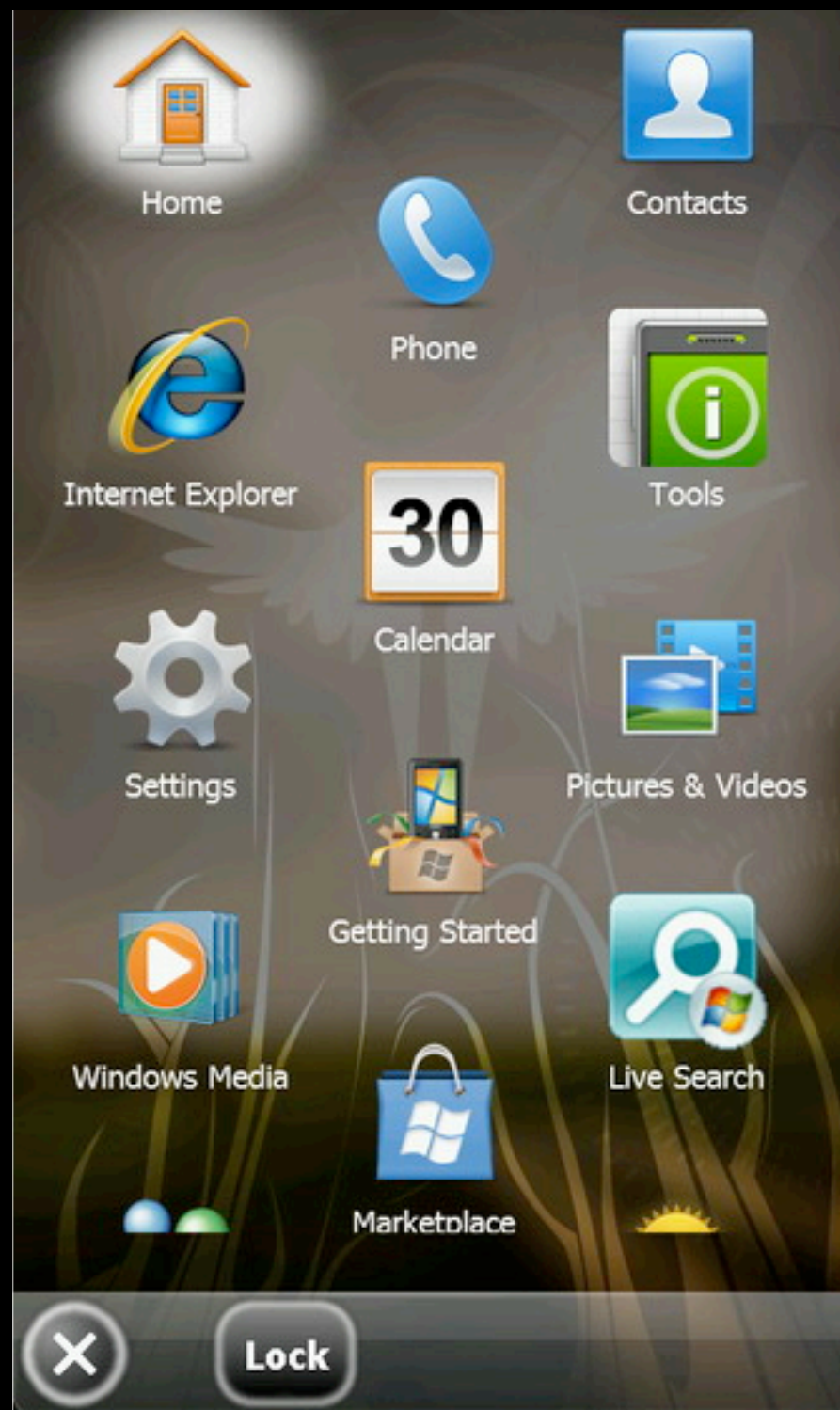
Larger buttons are needed for touch interfaces.

Hover interaction doesn't work on mobile devices

Lightboxes are very confusing on small screen devices

Science fiction shows us what could be done.

In Sci-Fi movies in the past we dreamt of interfaces that are human. Instead of moving a mouse and typing in cryptic commands computing is ubiquitous.
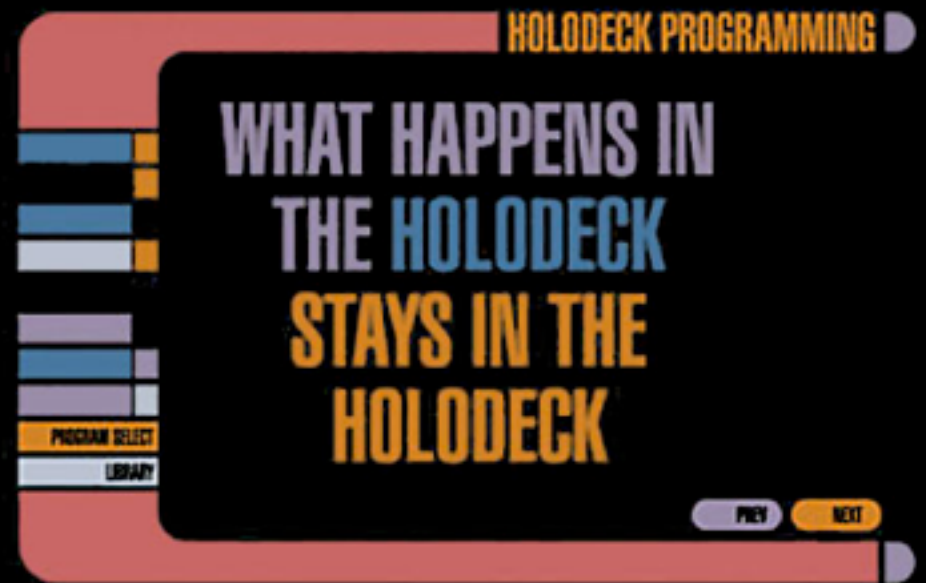
Star Trek had voice recognition.
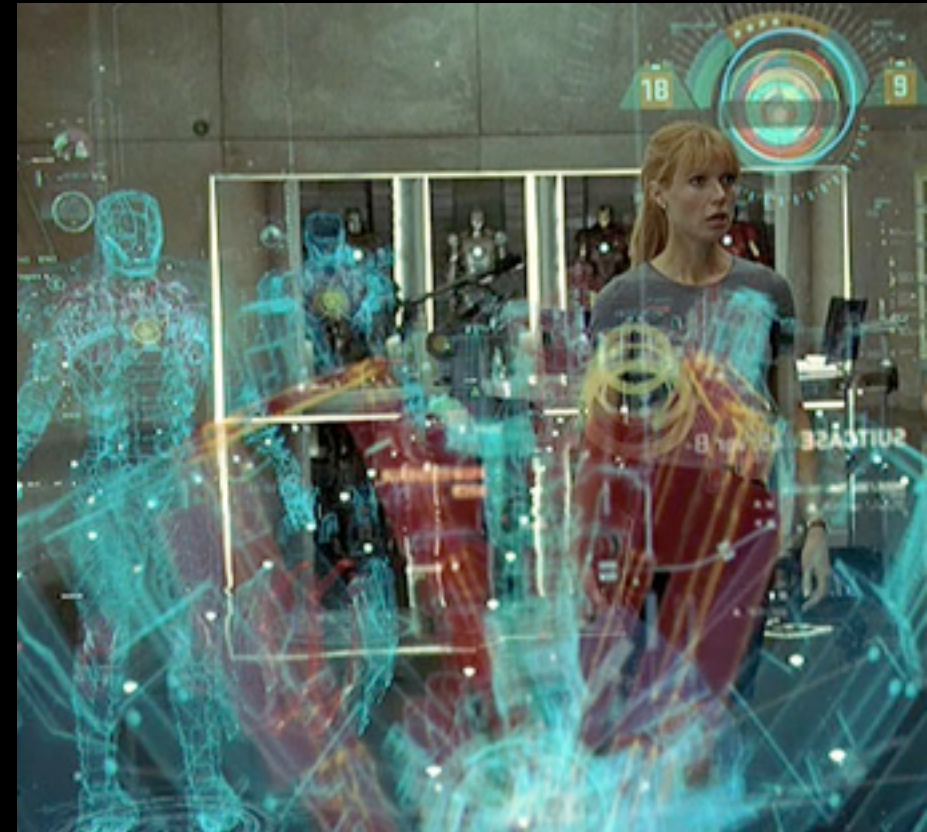
Iron man is a great example of what you could have as amazing interfaces.

You and I can be Iron Man!

Actually none of this is really fiction any longer.

Emerging technologies are **human** and **more accessible**
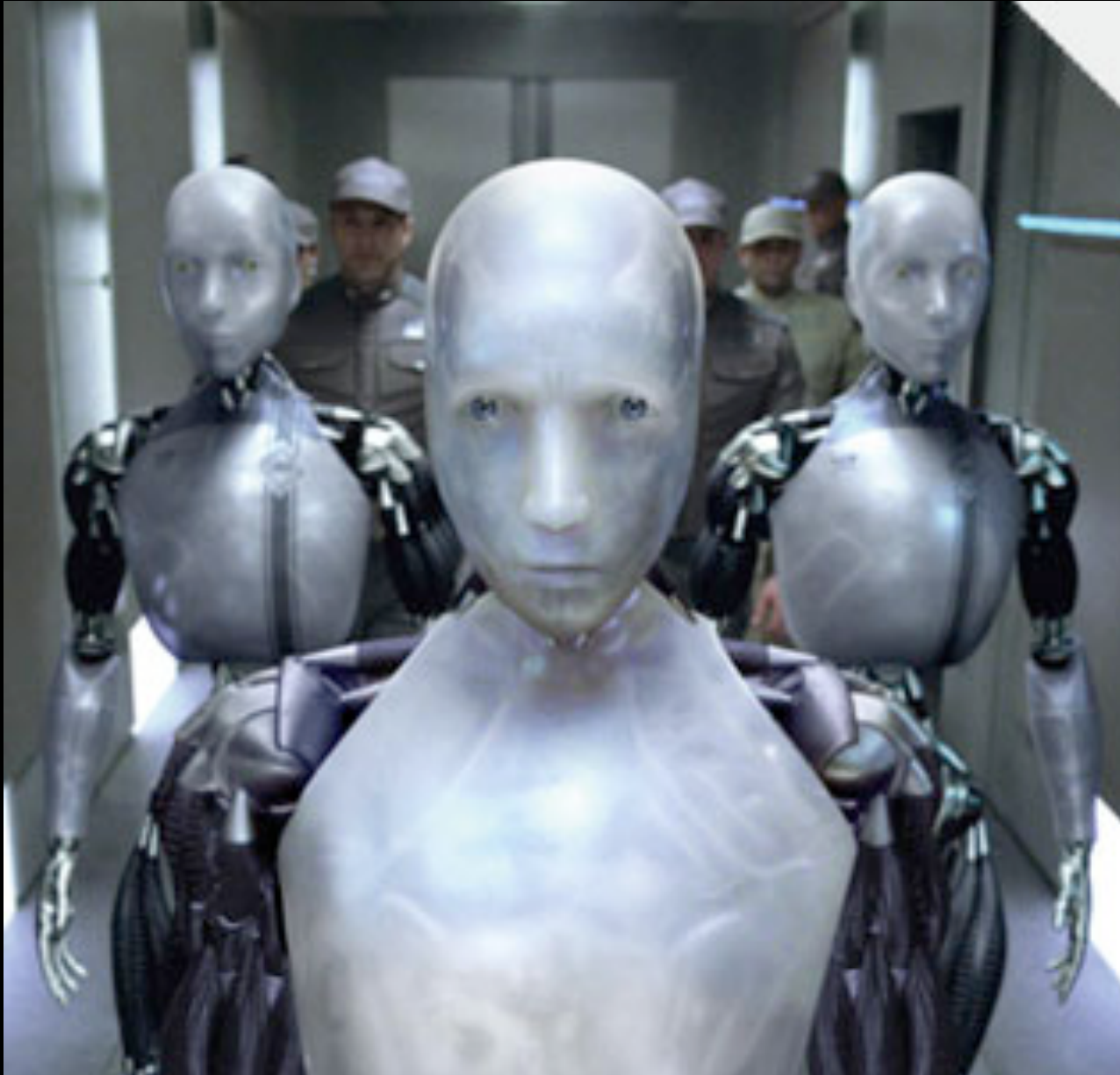
If you haven't realised it yet – computers are becoming more human accessible.

Speech recognition.

Speech recognition help us communicate with devices whilst we are on the go.

Touch interfaces.

Touch interfaces are much simpler to grasp (literally) for humans and are becoming a de–facto standard.

Device orientation is already used in games – why not in other interfaces?

Glenda Watson Hyatt

The iPad as an Affordable Communicator: Initial Review

Filed under: Living with a disability — by Glenda at 2:22 pm on Saturday, May 15, 2010

While in Chicago, I made a short trek to the Apple Store. My mission was to try out an iPad, which are still unable here in Canada until May 28th, to see if I could reliably use
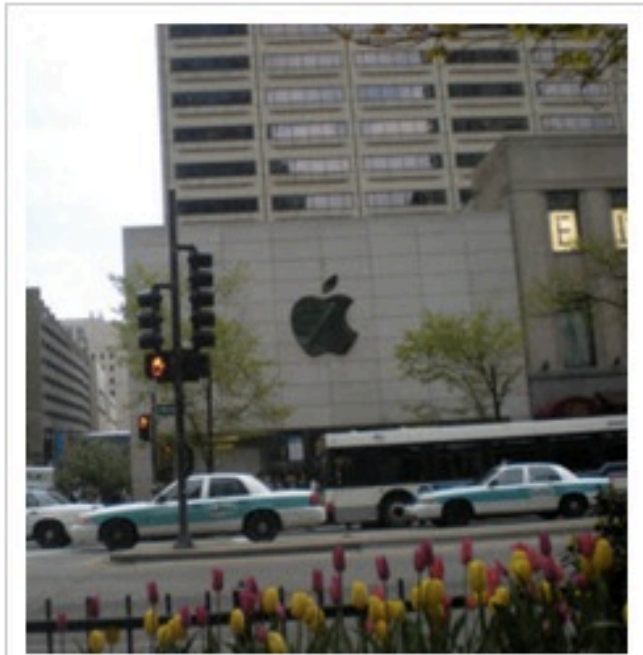
204 tweets

retweet

Glenda Watson Hyatt shares her experiences living with cerebral palsy to motivate and inspire others to think about how they perceive their own situation and their own world around them. She does all this by typing with only her left thumb!

Read Glenda's Book:

Glenda Watson Hyatt

I'll Do It Myself

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How POUR is You Blog?

How POUR Is Your Blog?

Take the example of Glenda Watson Hyatt – a lady bound to a wheel chair who could only communicate with a massively expensive piece of hardware and replaced it with a much cheaper iPad with more flexible software.

The Wii blew the whole concept of gaming out of the water. Instead of pressing a random sequence of buttons and arrows you played tennis to, well, play tennis. This lowers the barrier of entry immensely.

The Wii is in use in homes for the elderly to make them move instead of vegetating in front of the TV. Awesome!

The Kinnect goes even further with this. Instead of having to play with any controller it recognises your shape and reacts to your movements. This could be used for accessibility interfaces.

It is true, none of this is free and open, but here is where geeks come in – what isn't open will be made open.

Hidden functionality for those in the know

I lied though when I said that the close door buttons don't work. In the US they do have a special functionality. If you go into a lift and press the close door button and then the floor you want to go to whilst keeping the button pressed the lift will go directly to that floor and not stop in between – regardless of people requesting it on other floors. This is for firemen and the police to get there quickly.

APIs

On the web this kind of inside knowledge means in most of the cases using an API. Clever companies don't just build interfaces – they also offer the data of their systems to allow people to build interfaces.

Opening up YouTube

One example of a use of an API that I did in the past is Easy YouTube. This is an interface catered for people with learning disabilities. YouTube now has big friendly buttons and not a lot on the screen. Incidentally and without knowing I also made YouTube available for blind users.

Opening up YouTube

http://www.youtube.com/watch?v=CwsDKaaIgq8
http://www.youtube.com/watch?v=QiuT0y0KR6I
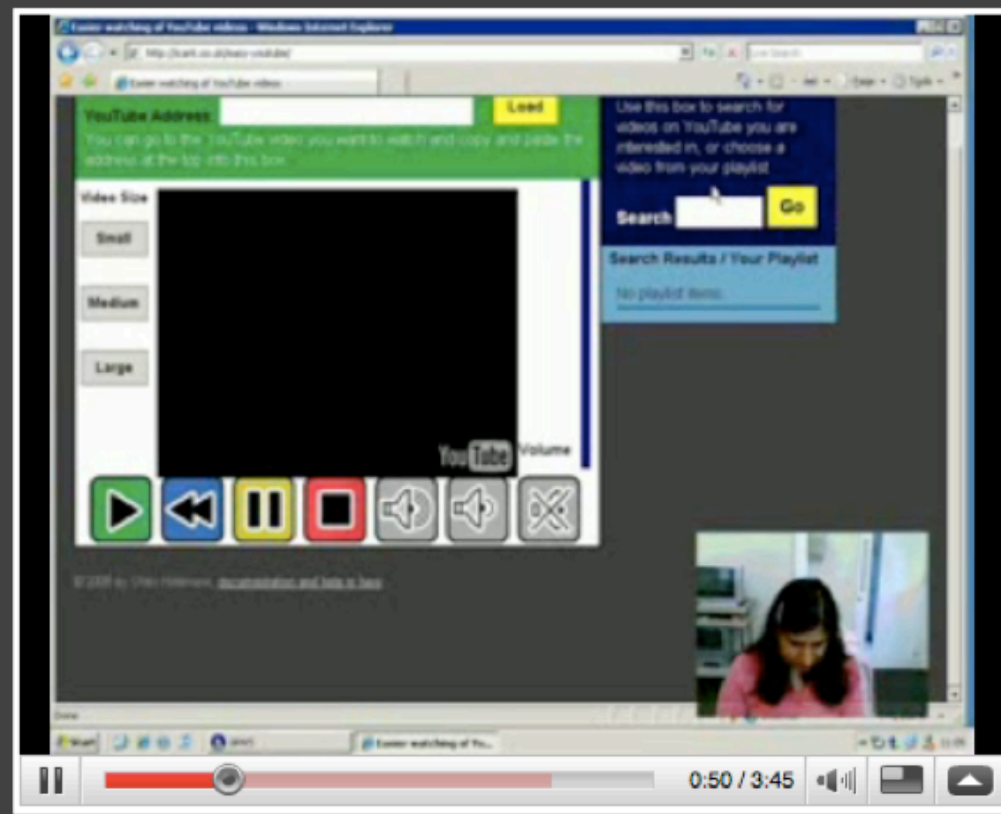
Here are a few of the results this had – a video of a blind user who said she hated the web being happy as punch to be able to control a video and a singer with a learning disability being able to watch music videos for the first time.

Geek pride can be yours

Players and layout
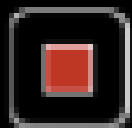
- Great elements of different players but not coming together as one player for people with learning disabilities.
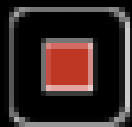
- Many people need to take time over what they are doing but don't want to use assistive technology.
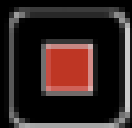
- Lots of people need to repeat information to understand it. Often there is no option to repeat (slider).

Enabling these people made me very proud indeed. And it only happened because someone with tech knowledge like me got a detailed list of requirements by someone who had a problem with current technology.

Give **simple instructions**
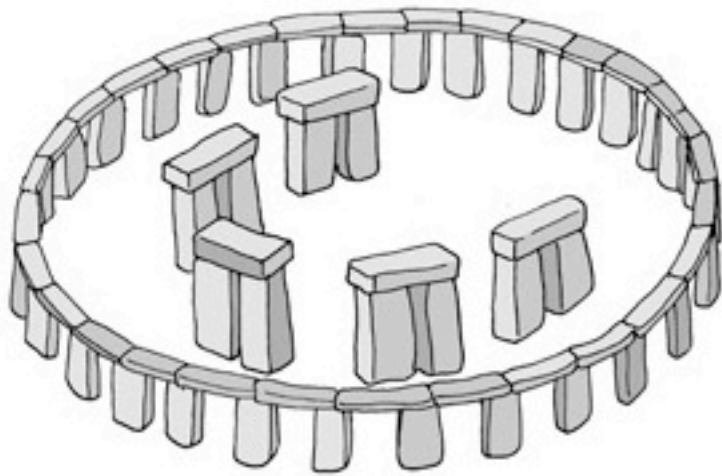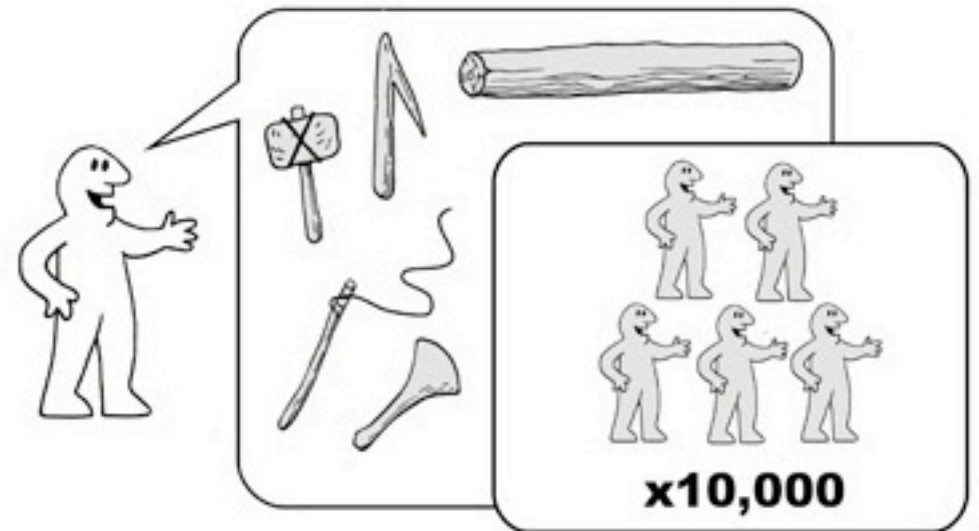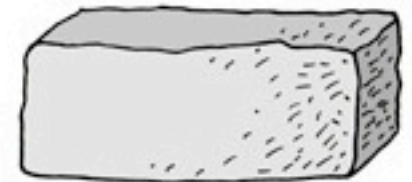
Antonia Hyde had asked at a conference to build a video player like Easy YouTube and I started building it right away.

Setting technology **free**

The main issue of YouTube was that it is Flash based and only gives me limited access. Now with open technologies we don't have that problem.

Native video and audio

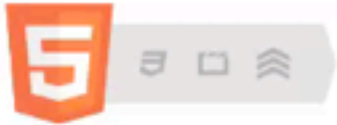Native HTML5 video is by default keyboard accessible and can be styled in any way.

Syncing video and other content

You can read out the current time and react to it. This allows you for example to sync HTML content around the video with what is happening in the video. Yes, you might have guessed it – that makes for very simple captioning interfaces.
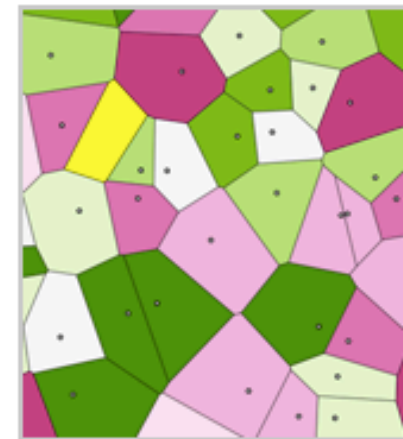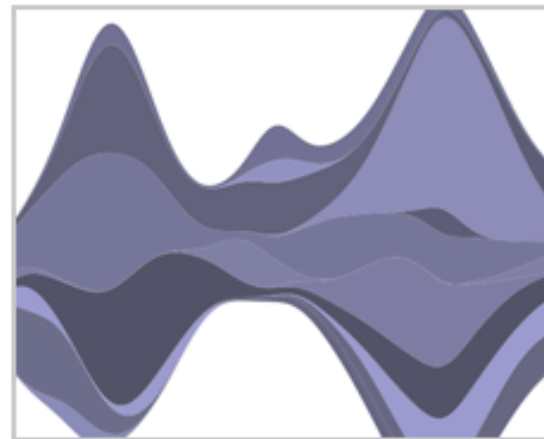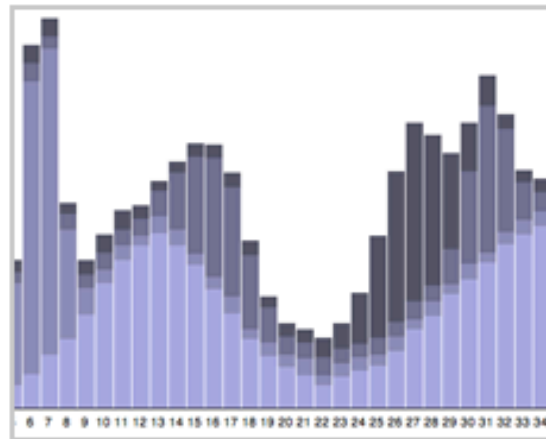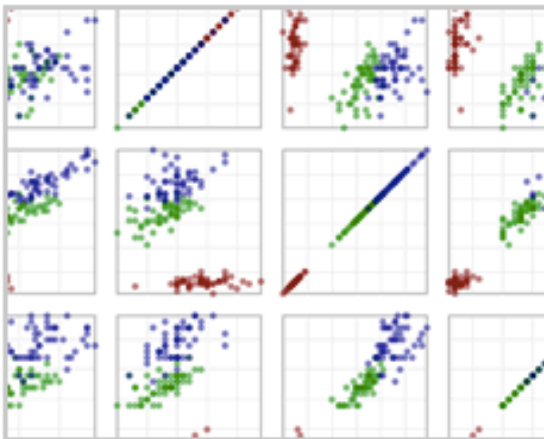
Native **rich interaction** and *styles*

http://mbostock.github.com/d3/
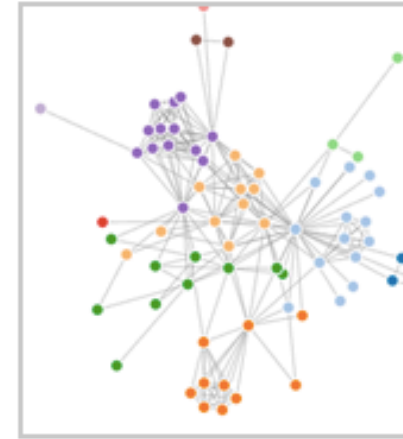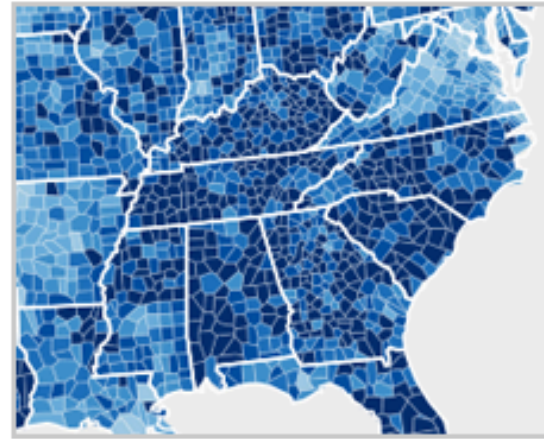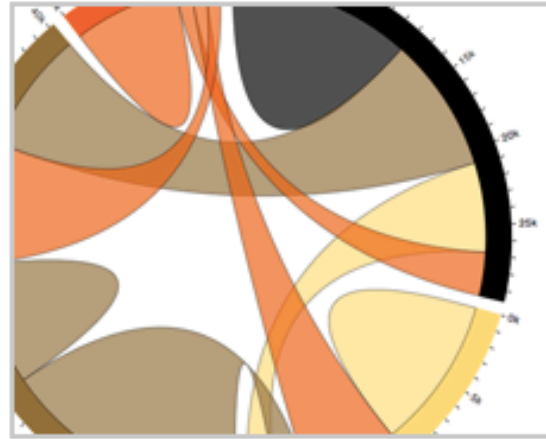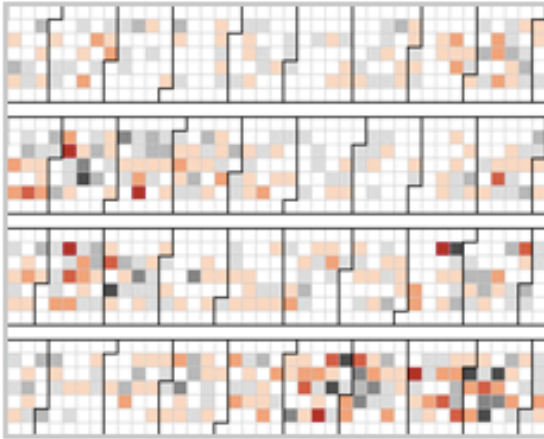
Using technologies like Canvas and SVG you can create beautiful visualisations of data in the current document. Native to the browser, accessible for translation and reading by assistive technology and beautiful.

Input and output

Trying out webkit speech input

```
<input type="text" x-webkit-speech />
```

Voice recognition is not far away – same as face recognition. We have cameras and microphones in our computers, why not use them?

The main thing we need to do to marry the crazy cool innovation we have now in development with accessibility concerns is to stop thinking in limits and use disability needs as an opportunity to build better products. For this, above all, we need to embrace the web.

The **web** is the **platform**

Imagine no need to buy Windows and upgrade your JAWS. Imagine not having to worry about security patches. Imagine computers booting up in seconds rather than minutes with dozens of security questions and barriers.

The **web** is the **platform**
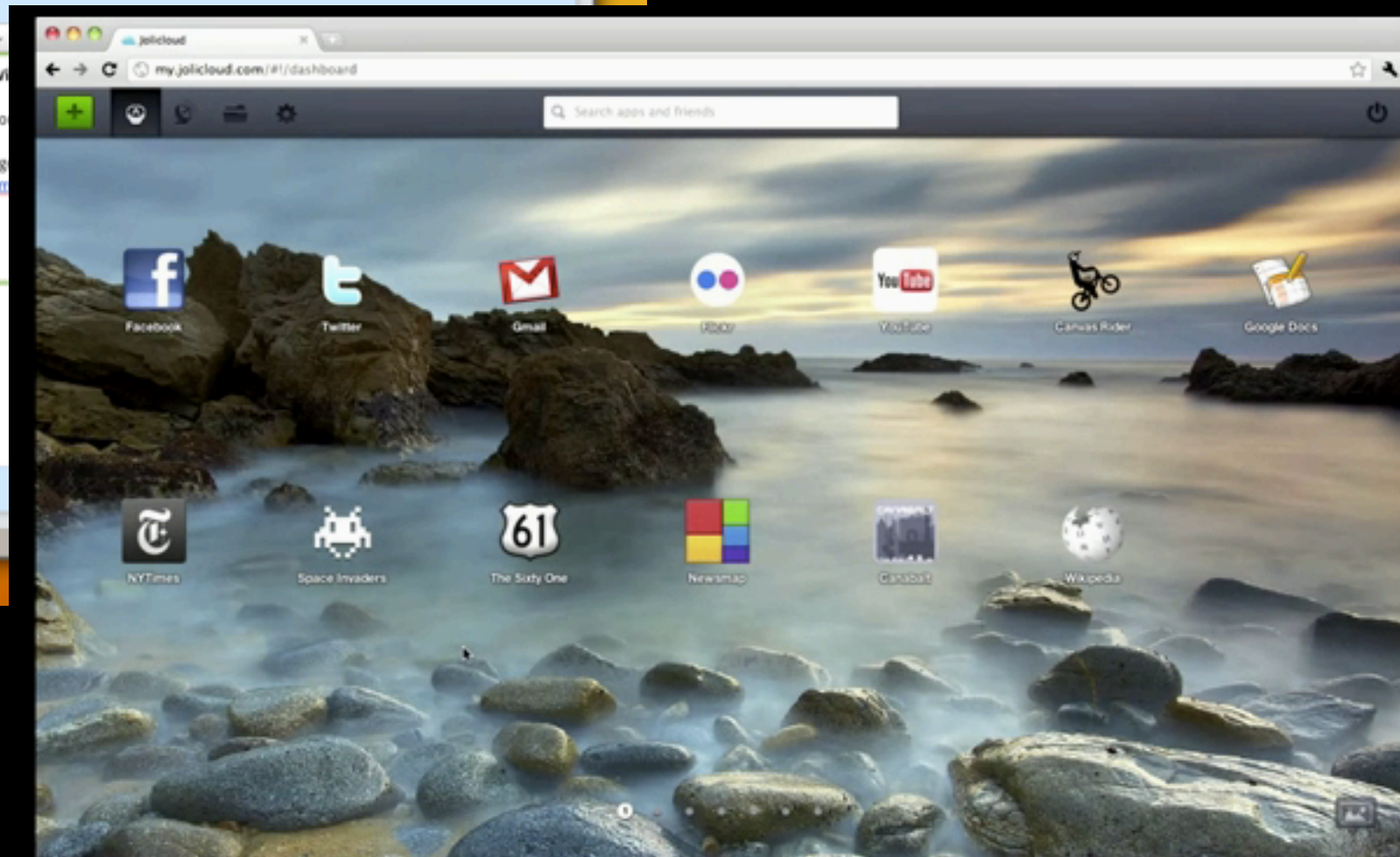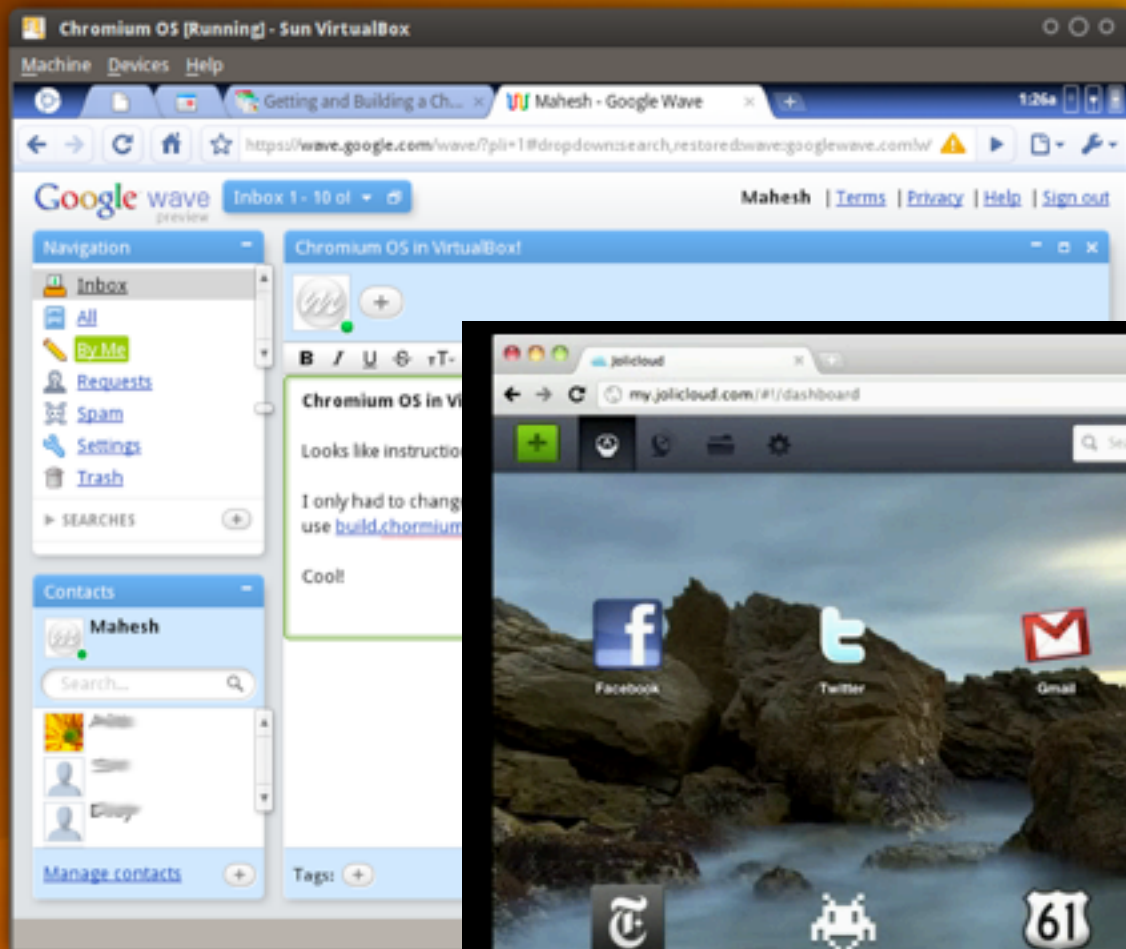
We can have that! Systems like Jolicloud and Chrome OS totally do away with the need for an operating system layer – you boot into the web. If you are offline you can still use the machine to write and store but all your work is on the web.

The **web** is the **platform**

Let's not leave this as the playground for a selected few – let's make this the accessible layer of the web.

web visum (vision, in latin) is your eyes for the web

Welcome to Webvisum

WebVisum is a unique browser add on which greatly enhances web accessibility and empowers the blind and visually impaired community by putting the control in your hands! Its aim is to allow you to better enjoy surfing the net and be significantly less dependent upon outside help. Now available in English, German, Russian, Italian, Slovak, Bulgarian, Dutch, Croatian, Romanian, Portugese, Turkish and Spanish! If you want to help, login into your account and visit the Community page!

Just a few exciting features that we already offer:

- **Community driven tagging and page enhancements.**
- **Automated and instant CAPTCHA image solving, sign up to web sites and make forum posts and blog comments without asking for help!**
- **Built in helper functions for easier page navigation and less confusion.**
- **Numerous under the hood page tweaks designed to help screen reader users.**
- **Visually Impaired users benefit from features such as high contrast page viewing, link and focus highlighting, and more.**

It is only available for the Firefox browser. If you have not used Firefox, or used an old version, we highly recommend that you Download Firefox version 3.5 which is probably the most accessible, fast and overall best web browser on the Internet. You won't regret it!

Start using the service straight away by first creating an account with us through the Register page and then installing the add on in your Firefox. For more information on how to use the service, please read the Tutorial through. Once you are running Firefox with Web Visum install

http://webvisum.com/

Instead of complaining that the people on the web do not care about accessibility let's use them to make the web more open to everyone

http://www.universalsubtitles.org/en/

Take Universal Subtitles for example. This is a small JavaScript you can put into any web site that adds a subtitling interface to any video in the page – people can write subtitles for a part of the video and can also translate it.

We need more of these tools – let's make accessibility a concern for all, not a thing to make a lot of money with by offering bespoke services.

Stop preaching to the choir

Stop staying in your comfort zone of accessibility mailing lists and conferences. Go out and infiltrate the main conference circuit and discussions about cool new technology. Tell the world about our needs and demand them to consider them.

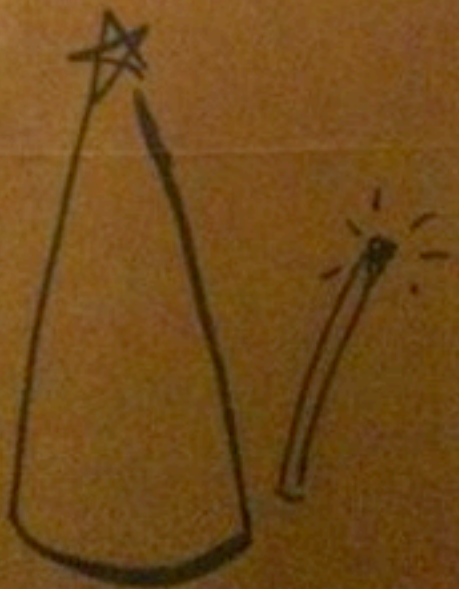# Stand **proud and tall** - we can be a **butterfly**!

Accessibility doesn't have to be the ugly duckling of development and IT solutions. It could be the beautiful butterfly leading us to a much more human interface future. Go for it.

Thanks!

Chris Heilmann
@codepo8
#mozilla
#html5/freenet