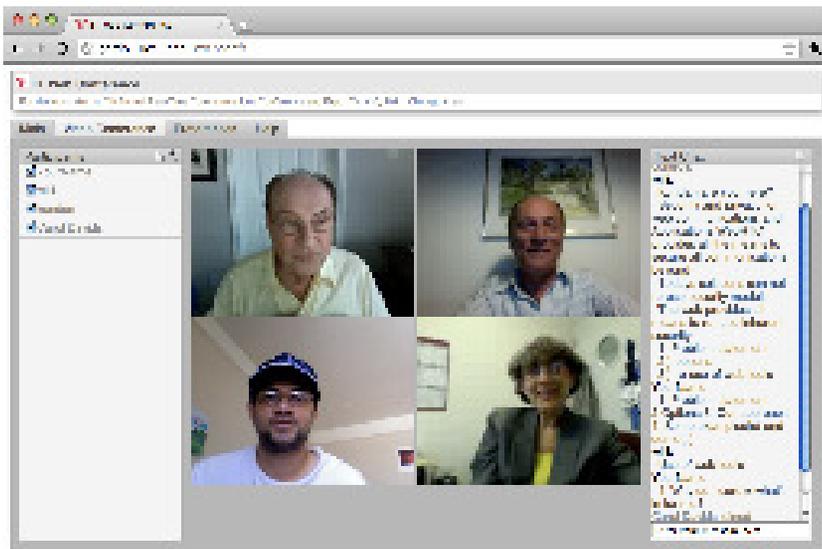


Voice and Video Communications on the Web



Carol Davids, Alan Johnston,
Kundan Singh, Henry Sinnreich,
Wilhelm Wimmreuter

Aug 2011



VoIP

Web

Separate islands of innovations

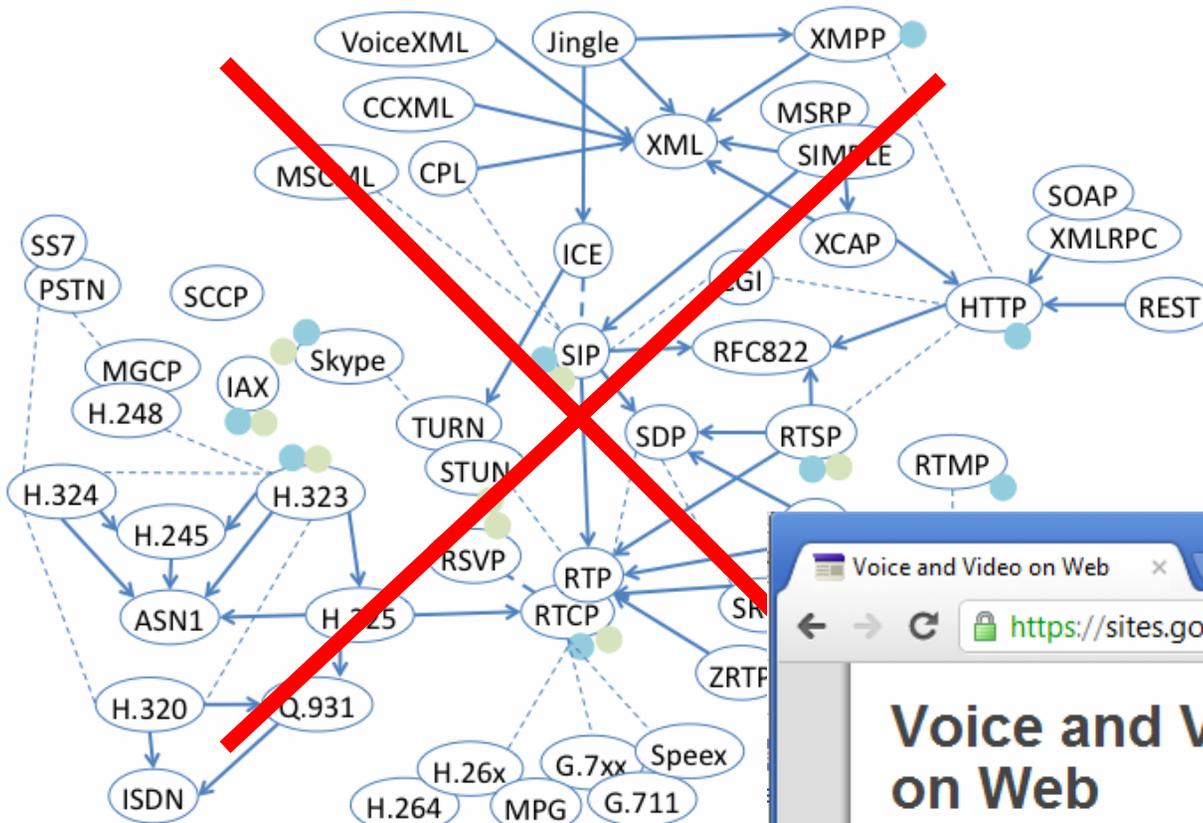


From VoIP to Web

- ❑ Provider and user perspective
- ❑ Trust model, session negotiation, ...



Minimum Protocol Requirements



HTTP

signaling and control

UDP

media transport

Voice and Video on Web

<https://sites.google.com/site/vowproject/>

Search this site

Project Overview

Documents
Downloads
Meetings

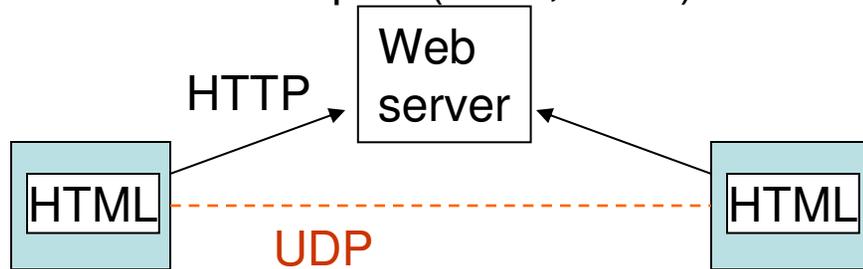
- 2011-01-27
- 2011-02-03
- 2011-03-03

The main objective is to develop the technology and sample implementations for web applications that include real-time voice communications. The project aims for web

Modify browser

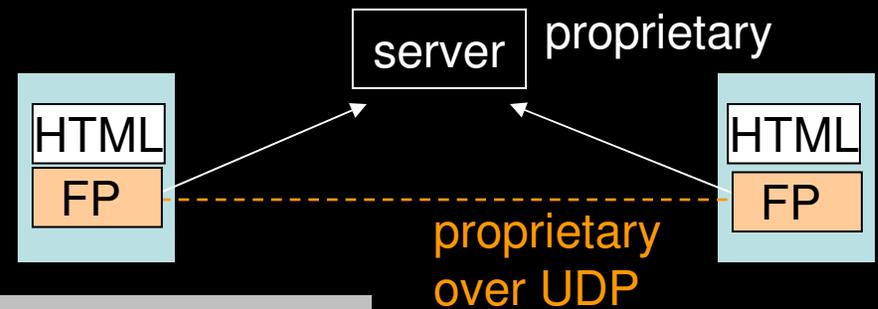
Extend web protocols/languages

1. Include SIP/RTP stack
2. Add device access, codecs and e2e transport (IETF, W3C)



Use existing plugin

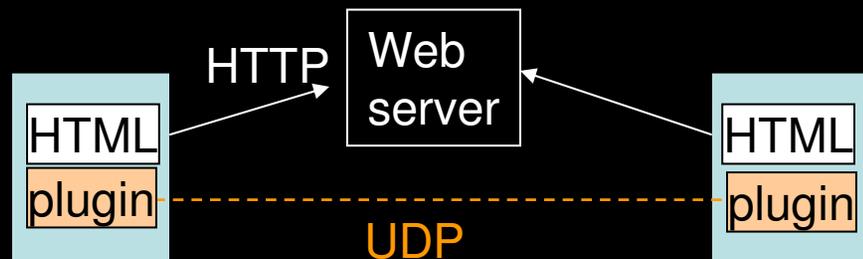
Most existing web communication systems use Flash Player



Available Options

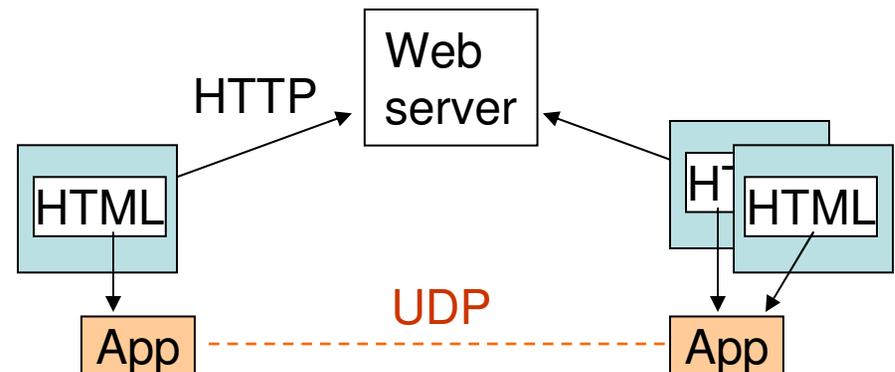
Build new plugin

Just handles missing pieces
(device access, codec, transport)



Use separate app

Runs as a separate process/service



Modify browser

- No other dependencies
- Eventually a standard
- Numerous web developers
- Reluctance to change
- Portable device access/sharing
- Time to ubiquitous availability

Use existing plugin

- Ubiquitous availability
- Browser agnostic
- Rich developer tools and experience
- One-to-one as well as group
- Transport is not enough (for SIP/RTP)
- Cannot install new codecs
- Depends on vendor for updates

Available Options

Comparison

1. With existing technologies
2. Emerging standard protocols
3. Allow walled garden
4. Require new install
5. App dies on page close
6. Re-use web security means

Use separate app

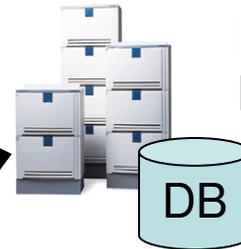
- Browser and app agnostic
- Any transport, language, codecs.
- Persistent/long lived state
- Yet another install, slow adoption
- Security and access control
- Video display needs plugin

Our Project

(1) Signaling API

Resource-based, SDP=>XML/JSON, subscribe/notify, long-lived connection, persistent vs transient data, access control

Apache web server,
PHP websocket server,
MySQL database



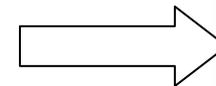
(2) Communication Widgets

Click to call, contact list, conference object



(3) Media Application API

Transport, auth and media objects



Summary

Opportunities

Motivation
to move VoIP to web

Available Options

1. Modify browser
2. Use existing plugin
3. Build new plugin
4. Use separate application

Our project

Signaling API
Communication widgets
Media path
Demonstration

Project: <http://sites.google.com/site/vvowproject/>

Source: <http://code.google.com/p/vvowproject/>

Demo: <http://gardo1.rice.iit.edu/webconf/>