

Why You Should Care About P2P and Web Services

Yet Another Perl Conference 19101

June 2001

Nathan Torkington

Web Services

- Present: many database-backed web sites
- You've probably written programs that format data as HTML
- HTML works fairly well for humans
- Sucks donkey dong for computers
- Ever parsed HTML with REs or LWP, only to have the HTML format slightly change and thus your program break ... ?
- You really wanted web services

Definition

- Computer-to-computer messaging ...
- Encode information in XML
- Transfer over HTTP
- XML parsers are ubiquitous
- All you need to do is work with the data, not futz around worrying about how to get to it

Reality: SOAP

- Two contenders: SOAP and XML-RPC
- SOAP = Simple Object Access Protocol
- "Simple" my hairy white ass
- On top of SOAP there's WSDL and UDDI and
- Microsoft, IBM, ... are plugging SOAP
- Interoperability problems because of the bloated standard
- OO

XML-RPC

- XML-RPC = XML Remote Procedure Call
- Very light-weight

- Strong interoperability
- Dave Winer driving it
- Procedural (non-OO)

Perl and Web Services

- SOAP::Lite is an amazing kick-ass module
- XMLRPC::Lite by the same author
- Paul Kulchenko rocks my world
- Servers can be standalone, CGI, or mod_perl
- Clients are trivial to write
- Can even use AUTOLOAD so you don't need to say which subroutines are remote

Where They're Used

- Next release of MS crapware will be full of SOAP
- Sun's plugging web services, modulo some problems with their "everything is Java" philosophy
- Servers are providing interfaces callable through SOAP or XML-RPC (e.g., Freenet)
- GNOME's SOUP is an implementation of SOAP that will make its way into a whole lot of Unix apps
- Your systems ...

P2P Hype

- Couldn't escape the hype six months ago
- O'Reilly ran a well-attended and well-reported conference
- P2P was the golden child!
- Napster is P2P! SETI@Home is P2P! ICQ is P2P!
- VC frenzy

P2P Definition

- No consensus
- My take: it's "something that's not the web"
- So what's the big deal?
- No big deal, except that VCs and programmers had been focussing on screwing more and more out of the web (cookies, WebDAV, SOAP)
- Suddenly the realization came: "we can do more than just add more shit to web servers and browsers"

P2P Politics

- Hippies dug it: "screw the man!"

- VCs dug it: "new unexplored realms!"
- Kids dug it: "woo! free music!"
- Decentralization: information lives on your computers, not on the servers
- Very few purely decentralized services (Gnutella is one). Most are a mixture
- Examples: Napster, SETI@Home, ICQ

P2P Technology

- Instant messaging: AIM, ICQ, Jabber
- Distributed computation: distributed.net, SETI@Home, United Devices
- Collaboration: Groove, Zaplet
- File sharing: Napster, Gnutella, Freenet
- Reputation and trust: MojoNation, Freenet
- Infrastructure: JXTA, ???

Another View

- This is just distributed computing for the masses
- All that research on replication and "find a leader among peers" and distributed objects in the 80s
- ...
- Used for swapping mp3s, breaking RSA, and instant-messaging netsex in the 00s
- My old head of department is turning in his grave

Why Should You Care?

- Technical challenges
- New niche with opportunities (already being filled by Python)
- Fun toys (Jabber)
- Real reason is political
- Preface: I am not Richard Stallman or a member of the EFF. I'm the laziest non-political worthless piece of crap you ever met. But ...

Code

- Read Lawrence Lessig's "Code and Other Laws of Cyberspace"
- "The net cannot be regulated or censored" is bollocks
- The net is built on code and protocols
- You can build regulation and censorship on top of those protocols

Code 2

- Commerce doesn't want you to have anonymity or privacy
 - selling to and tracking customers

- Government doesn't want you to have anonymity and privacy
 - tracking criminals and enforcing laws

Code 3

- Prediction: commerce will layer authentication and authorization on top of today's net
- Government will not stop them
- Government may even legislate to encourage their adoption
 - "no internet sales tax if you use your digital ID!"

Code 4

- Existing laws weren't designed for a world where zero-cost-perfect-quality copies are possible
- There is a decision to be made in how to apply old laws to new situations
- Some interpretations will screw you

Code 5

- Consider copyright
- Your rights eroded by DMCA
 - illegal to break encryption even if free use permits you to access the data
- SDMI, DeCSS, the RIAA cartel, ...
- Copyright law is made by RIAA and MPAA
- Neither artists nor users are represented

So?

- Freenet
- Like Babylon 5: "Our last, best hope"
- Fully anonymous, fully encrypted
- Right now, only server implementation is Java
- Has XML-RPC client API, though
- Would be nice to have an all-Perl server
- Bonus points ... write it as an Apache 2.0 protocol module

The End

- Thanks