Open Platforms for Federated Futures

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Agenda

1. Why?
2. How?
3. The Future
One thing that the cloud has taught me is to plan for failure.
Is your social network provider too big to fail?

"What's the worst that could happen?"

"What's the worst that could happen?"
Welcome to Cloud City
Federalism

The Federalist Papers
A Clean Separation of Concerns
Islands of

- Democracy
- Opportunity
The P2P Economy

"a Full-Duplex Service Economy"
Welcome to the
As-a-Service Economy

- Uber / Lyft
- AirBnB
- Alibaba / EBay / Craigslist / Amazon
- Eventbrite
- YouTube / SoundCloud / Bandcamp

integrated quality feedback?
Trust and Identity
Owning your Data

a digital rights issue
There is no cloud
It's just someone else's computer
Who owns your data?

Hint: Read the TOS, it may not be you
Who brokers your identity?
• your email provider?
• your phone company?
• credit agencies?
• your SSN?
• google, apple (have you rooted)
• facebook
• linkedin
• twitter
• github
Nymrights

http://nymrights.org

Focused on:

- stopping discrimination
- preserving your right to privacy

German Telemedia Act
What about laws in the US?

As we move our lives online, we often lose the ability to negotiate with the businesses we deal with on a daily basis.

No democratic process to work with.

Only free market supply and demand to rely on.
Terms of Service

No negotiation

Subject to change at any moment

You may be banned without warning
what happens when we get locked out?
Or, better yet: "what is our switching cost?"
In a way, the tech industry has recently been struggling with the same question in regard to hardware / infrastructure (IaaS)
Who is the customer? Do I have any control?
Can your data be exported in an open format?
Remember:
What happens in Cloud City, stays in Cloud City
FOREVER!
Own your Identity

- OpenID
- OAuth2
- FreeIPA http://www.freeipa.org
- GSSAPI https://en.wikipedia.org/wiki/Generic_Security_Services_Application_Program
- Mozilla Persona?
- Login with GitHub
Rebuilding the Open Web
Open Source the Cloud

1. OS - liberated!
2. Infrastructure - liberated! (OpenStack, RDO)
3. Platform - liberated! (Kubernetes, Mesos, OpenShift)
4. Identity - Host your own OpenID, OAuth, etc.
5. Data - Tahoe-LAFS, OwnCloud, etc.
Are we there yet?
1. open, secure, reliable
2. standards based
3. no lock in, minimal switching cost
Unbundle, Shop Local and Host Your Own
The Open Source Desktop has arrived (it's in your browser!)

- Etherpad
- EtherSheet
Decentralized social platforms:

- Diaspora
- gnusocial
- tent.io
- pump.io
- OwnCloud
- Sandstorm.io
Diaspora

- decentralized social
- multi-home pub/sub style arch
- Diaspora Foundation
- http://JoinDiaspora.com
- Focus on privacy, freedom, users owning their own data
- Interoperability
Figure A:

Diagram showing a network of Tent Server connections with arrows pointing from Friend A to Friend B to Friend C to Friend D to Friend E, all connecting to a central Your Tent Server, which in turn connects to Statuses, Messages, Photos, Profile Changes, and ultimately to You.
Figure B:

Fig. 1—(a) Centralized. (b) Decentralized. (c) Distributed networks.
Establishing a protocol, or not:

- decouple identity and data / activity
- interact with folks across social hubs (federation)
- ActivityStreams 2.0
- DAT
- OpenSocial (old, now proprietary?)
- tent.io (developing a protocol, asking great questions)
- pump.io (activitystreams)
- OwnCloud (Dropbox and more?)
- Tahoe-LAFS (Least-Authority FS)
In Crypto we Trust
Walls of cryptography
Types of crypto:

1. Disk encryption
2. File encryption
3. Network i/o encryption

Who controls the lines of transmission? ISPs, telcos, NSA (prism, xkeyscore)?
SSL

2. StartSSL: https://www.startssl.com/?app=39
Tahoe-LAFS: provider-independent security

"The service provider never has the ability to read or modify your data in the first place: never"

"Not only is it easy and inexpensive for the service provider to maintain the security of your data, but in fact they couldn't violate its security if they tried"

from the Tahoe-LAFS public trac
Fully Homomorphic Encryption

- Support for blind processing operations
- Data stays encrypted while being transacted upon

https://en.wikipedia.org/wiki/Homomorphic_encryption
Are we there yet?

1. open, secure, reliable, and trusted
2. standards based - no lock in, minimal switching cost
3. distributed, decentralized, and scalable
4. properly monetized, proper alignment of incentives
The cloud is a free market for services. There are a lot of new "as-a-Service" solutions for storage, compute, caching, hosting, monitoring - all being handled by different open and pluggable vendor solutions.

Predictions?

- Domain registries that support OAuth-style provisioning
Traditional Open Source and As-a-Service business models work well in this market:

- Charge for uptime
- Charge for storage
- Charge for security patching
- Charge for monitoring
- Resell electricity?
Challenge

Build Federated:

- Decouple and Unbundle - pay for uptime, not for usage terms
- Decentralize and Interoperate - treat your utilities like utilities
- Adopt Open Standards for communication, for data storage
- Secure your data (strong crypto)
- It's your content, define your own TOS
Reclaim your data, and your identity

Go Forth
and
Federate!

Thank You!

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