



Standards:
There's always room for one more

Nicola Nye

We made a
new standard!

Yay!

JMAP

JSON Meta Application Protocol
(It's like IMAP but one more)

WHY did we
make a new
standard?

What were we
thinking?

- It's hard!
- It's time consuming!
- It's expensive!
- It's stressful!

Contents

- Why do we have standards?
- Who runs this whole process?
- How does an idea become a standard?
- A standard is only the first 90%: what comes next?
- What did we learn from creating a new standard?

What even is a standard?

HTTP

RFC1945

Hypertext Transfer Protocol -- HTTP/1.0

TCP/IP

RFC 1122 & RFC 1123

Requirements for Internet Hosts -- Communication Layers

Requirements for Internet Hosts -- Application and Support

FTP

RFC 959

File Transfer Protocol

Gopher

RFC 1436

The Internet Gopher Protocol

(a distributed document search and retrieval protocol)

IRC

RFC 1459

Internet Relay Chat Protocol

Ethics

RFC 1087

Ethics and the Internet

Pigeon Protocol

RFC 2549

IP over Avian Carriers with Quality of Service

IMAP

RFC 1064

Interactive Mail Access Protocol – Version 2

JMAP

RFC 8620 & RFC 8621

The JSON Meta Application Protocol - Core

The JSON Meta Application Protocol - Mail

A standard is
an open source idea,
codified for repeatable outcomes.



So. Many. Standards.



The nice thing about
standards is that there
are so many of them
to choose from

Andrew S Tanenbaum

PICTUREQUOTES.COM



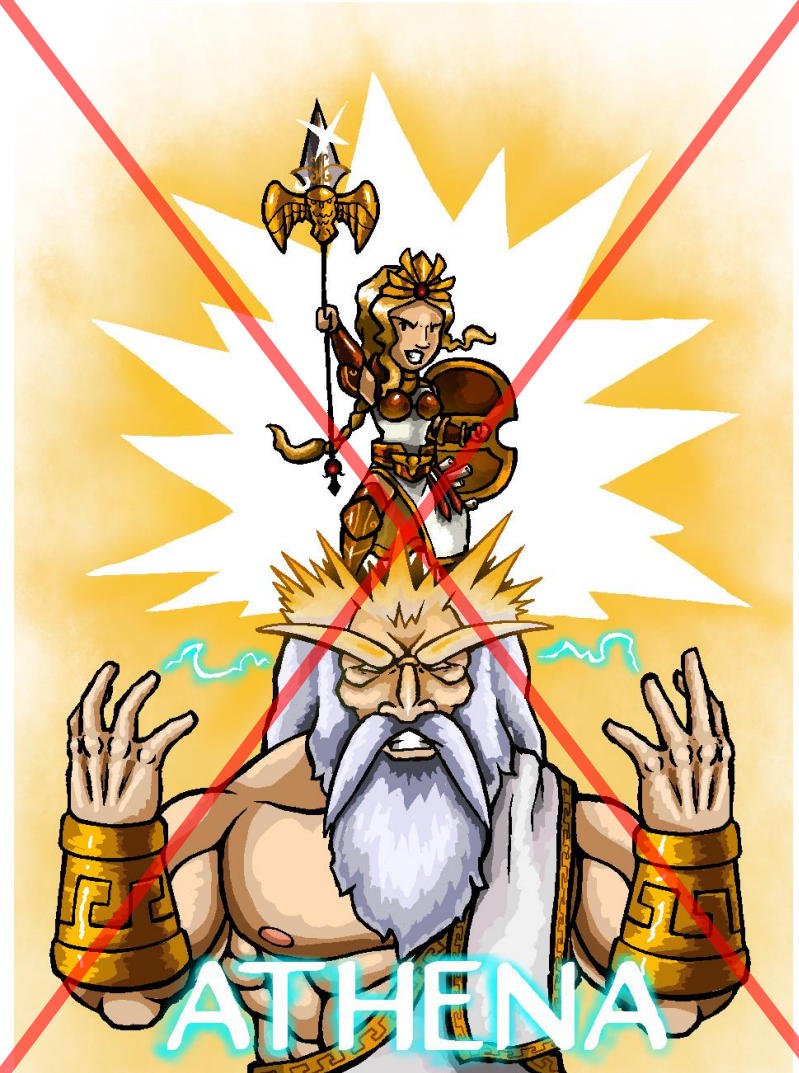
Why do we
have
standards?

The internet runs on standards.

- A common language.
- A level playing field.
- Interoperability.
- Remove ambiguity.

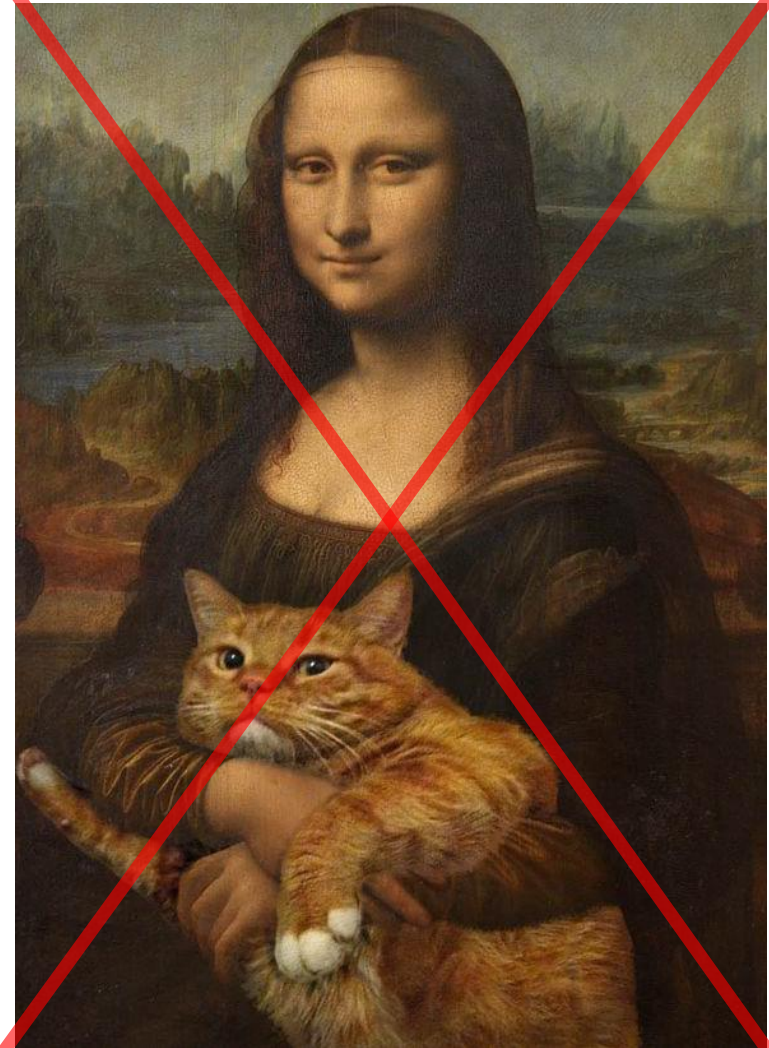
Where do standards come from?

They did not spring forth, fully formed.



Where do standards come from?

They are not a beautiful masterpiece created by a single artist.



Where do standards come from?

They aren't burped out of a machine



Where do standards come from?

A labour of love
Volunteers



A standard is
not (just) an
RFC

Not all RFCs become Standards.

IETF standards mostly RFCs

Many standards bodies: W3C,
WHATWG, OASIS, ISO, IETF, others

About the IETF

- Internet Engineering Task Force
- Make the internet better technically

Who

- No formal roster or membership requirements
- Volunteers

Where

- Mostly online - mailing lists
- 3 conferences per year



IETF

IESG

Area

Working Group

Area ART – Applications and Real Time

Working Group

JMAP

Area

Working Group

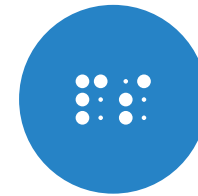
How does the IETF work?



Decisions through
"rough consensus".



Show of hands,
humming
(RFC7282), other.



No voting.



Can anyone not live with this >
any objections



Chair has final say.

Document lifecycle

1. Is document in charter?
2. Debate until there's rough consensus.
3. Working Group Last Call
4. "Request to Publish" to IESG
5. IESG reviews: all ADs need to not-object.
6. IANA reviews.
7. RFC Editors edit.
8. Final author and WG chair review.
9. Published!



RFC to Standard

Then to Now

- RFC1 was written in 1969
 - Host Software
- RFC8676 written in November 2019
 - YANG Modules for IPv4-in-IPv6 Address plus Port (A+P) Softwires

RFC Status

- Historic
 - Technology no longer recommended
- Informational
 - April Fool's, DNS, things in the wild
- Experimental
 - Can get promoted to Standards track
- Standards Track
 - Proposed standard (most things)
 - Internet standard (rare)

Herding cats

- Normal projects are hard enough.
- Now make it harder:
 - Volunteers with full time lives
 - Competing visions
 - Language barriers
 - Remote participants
 - All experts
 - Dedicated to critical review



Diversity. Excellence. Inertia.

- It's a wonder the internet works at all.
- Resilient, weird, independent.
- All about people
- Standards: interoperability.
- Inertia.
- Change is hard.
- The internet is full of holes of forgotten servers and dark magic.

It's not DNS

There's no way it's DNS

It was DNS

DNS: persistently weird



Our mighty heroes

Neil Jenkins (JMAP author)

Bron Gondwana (JMAP Working Group Chair)

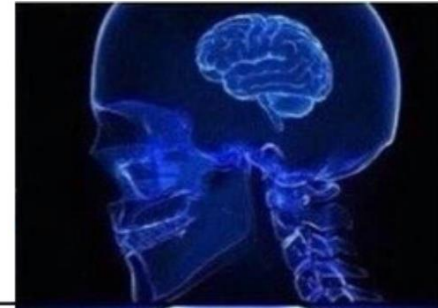
Why would anyone do this to themselves?

- A good, innovative idea.
- IMAP: old, clunky. JMAP: modern, elegant.
- Power imbalance: David and Goliath.
- Vendor lock-in is bad.
- Standards are the lever.
- Email should be universal.
- Improve the world!

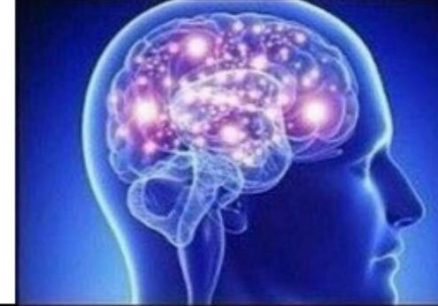


A published
standard
isn't enough

IDEA



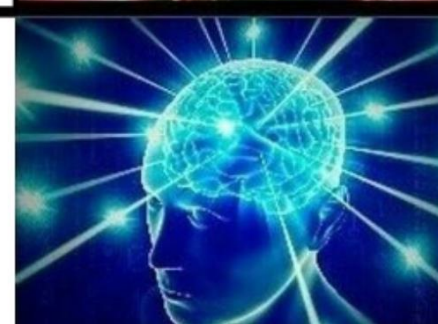
RFC



STANDARD



ADOPTION



Adoption is hard

- Mid 1800s: rail travel in Australia.
- In 1922, 273 inventions to solve the break of gauge proposed; none adopted.
- In 1933, 140 devices were proposed; none adopted.
- In 1994, over 150 years after we started using rail, all capitals were finally connected by a single gauge.
- In 2019, lots of different gauges still exist.

Standard is only the first 90%

Where is
JMAP
currently
being
used?

Platform: Cyrus open source mail server

Platform: Apache James mail server

Product: Fastmail (Cyrus)

Product: Topicbox (Cyrus)

Product: Atmail mail service (Go proxy over Dovecot)

Product: Linagora (Apache James)

Standard is
only the first
90%

Extensions:
calendar/contacts/extras

Get it into other servers
and clients.

Developer Community!
Marketing! Adoption!

ReFleCtions

The
awesome:

Many experts and smart brains.

Find (and fix) holes.

Detect and test your assumptions
("but I don't have an accent").

It's like pair programming with
the internet!

ReFleCtions

Not quick. 5 years (2014-2019)

Not cheap. 4+ people, \$1million

We still have people embedded in IETF.

Personal development. Skills for life.

Happy with the end result? Yes!

Do it again, knowing what we know now?
.... Not for anything less!

Summary

We all need standards.

Many organisations produce standards.

IETF: lengthy but transparent process.

It's hard, time consuming and expensive.

Driving adoption is non-trivial.

It's extremely rewarding and satisfying.