An IoT Forecast That’s Sunny ☀️ and Clear
(No Clouds!)

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web: iot.mozilla.org | twitter: @MozillaloT @kgiori @RzrFreeFr | source: github.com/mozilla-iot
I don’t want hackers accessing my home network nor launching attacks.

Security

My data in the wrong hands would reveal when to break in. Analysts viewing my home habits feels creepy. I don’t want any of those listening devices!

Privacy

I can’t figure out how pushing the doorbell can trigger turning on the outside light.

Interoperability

I worry that my investment in time, money, and effort will not provide sufficient value.

Overall Value

Smart home concerns

What risks are worth the value?
Mozilla Smart Home
(data local, private)

Typical Vendor
(data in cloud)
Decentralized Web of Things Approach

**WebThings Gateway**
A software distribution for smart home gateways focused on privacy, security, and interoperability

**WebThings Framework**
A collection of re-usable software components to help developers build their own web things

[iot.mozilla.org](https://iot.mozilla.org)
devices
Your Own Private Smart Home

Gateway + Smart Devices = Consumer Privacy

WebThings Gateway

moz://a
Welcome

Choose a secure web address for your gateway:

https://subdomain.mozilla-iot.org

Email

Please keep me updated about new features and contribution opportunities. Privacy Policy

Create

Skip
Web of Things Interoperability

W3C Web of Things
HTTP & WebSockets

IP Connected Devices (Wi-Fi, Ethernet,...)

Linking together different smart home systems using the Web of Things.
Open Source Community Development

All of our source code is on GitHub and you can find us in #iot on irc.mozilla.org or ask questions on Discourse.

github.com/mozilla-iot
(post issues to gateway repo)
WebThings Gateway Architecture

github.com/mozilla-iot/wiki/wiki
Directly monitor and control your home over the web, without a middleman

- Affordable one-off purchase, no monthly subscription
- Private data stays in your home by default
- Expand with devices from multiple manufacturers
Live Demo

- WebThings Gateway
- Tunneling into my office desk in Mountain View, California

or see:
https://youtu.be/3VtH5eVcWSE
https://youtu.be/KF2T58_c4dM
https://youtu.be/YVjNrUwpmgs
WebThings Gateway Software Image for Raspberry Pi

Do you own an RPi? I have a few uSD cards, pre-loaded with the image (limited quantity)
Easily Build Your Own Web Things

Download MicroBlocks from http://microblocks.fun

Let’s build a web thing!
Thank You!

iot.mozilla.org
@MozillaIoT

Phil Coval, WebThings community contributor and hacker.

Kathy Giori, huge fan (and advisor) MicroBlocks for education, also huge fan of Mozilla (former Mozilla IoT team member)
Backup Slides

WebThings

moz://a
Smart Home Survey Results

- Firefox and WebThings Gateway users (~260 each)
WebThings Gateway UI
Useful Reference Links

- [iot.mozilla.org](https://iot.mozilla.org)
- [github.com/mozilla-iot](https://github.com/mozilla-iot)
Connected Smart Home Use Cases

10 Example Use Cases

- Smart Smoke & Carbon Monoxide Detector
- Wireless Doorbell Cameras
- Keyless Entry
- Smart Window Blinds
- Water & Mold Monitoring Sensors
- Smart Thermostats
- Smart Outlets/Plugs
- Home Security Systems
- Smart Water Shut Off Valves
- Smart Home

Main Categories of Uses

- Enhancing the safety and security of my home and family: 49%
- Saving energy: 47%
- Making day-to-day life easy and convenient: 33%

Credit: The Hartford and MIT AgeLab
Mozilla’s Decentralized and Privatized Approach to IoT

Enabling IoT devices to be discoverable “on the web” ≠ Connecting your IoT devices “to the cloud”
Home Security and Home Automation

Sensors / Actuators

Support for door sensors, motion sensors, pushbuttons, bulbs, plugs, and more..
More Intuitive View Based on Thing Locations

Interactive Floorplan

View status of devices and control them directly inside the floorplan.
Wireless Pushbuttons: Like “TV Remote Controls” for Your Whole Home

Push Buttons

Trigger anything with the push of a button.
Say YES to “Allow Notifications” Dialog Box (Because Only You Can Create Them)

Push Notifications

Create rules which trigger a push notification with a custom message.
Go Crazy With Your Own Rules Logic

Advanced Rules Engine

Multiple inputs, multiple outputs.

If, while, and, or and equals operators.
Talk or Type

Smart Assistant

Control your home using speech and text via a chat style interface.
Secure Framework for 3rd Party Services

**Developer Settings**

Enable/disable SSH, view logs, and create OAuth tokens for secure web service interaction.
Open **webthing**-* Library Options

https://iot.mozilla.org/framework/

Node
Python
Java
Rust
Arduino
Moddable (javascript)
MicroPython
MicroBlocks
C/C++
e tc.
WoT Spec (Schemas) & Example

https://iot.mozilla.org/schemas/

Capabilities
- properties
- actions
- events

Example

```json
{
  "@context": "https://iot.mozilla.org/schemas/",
  "@type": ["Light", "OnOffSwitch"],
  "name": "My Lamp",
  "description": "A web connected lamp",
  "properties": {
    "on": {
      "@type": "OnOffProperty",
      "type": "boolean",
      "description": "Whether the lamp is turned on",
      "href": "/things/lamp/properties/on"
    },
    "brightness": {
      "@type": "BrightnessProperty",
      "type": "integer",
      "description": "The level of light from 0-100",
```
Add-ons: Bridge to JSON Web Thing API

ActivityPub
Broadlink
Chromecast
DateTime Adapter
Email Sender
Eufy
Flic Button
Generic Sensors
GPIO
HomeKit
Lifx
Logitech Harmony
MicroBlocks
Nanoleaf
Netatmo Wx
Philips Hue
Pimoroni Blinkt!
Pulse
Serial
Sonos
TP-Link
Twilio
Virtual Things
Voice Control
Wake-on-LAN
Web Thing
Wemo
X-10
Yeelight
Z-Wave
Zigbee
and more...