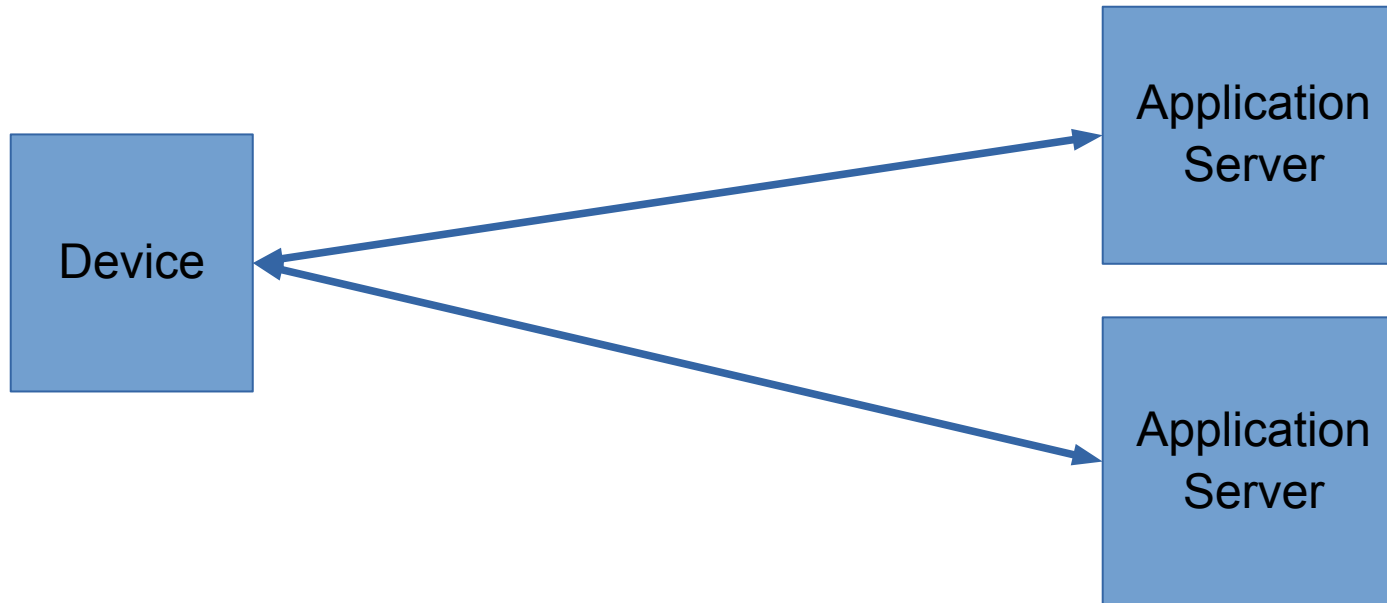# Web Push

IETF 90
Dispatch

Applications

Applications hate your battery

They want to do things

Doing things consumes power

Doing uncoordinated things is worse

Online Communications

Device-initiated

Expensive

Doing Things is the Whole Point

So we try to contain the problem

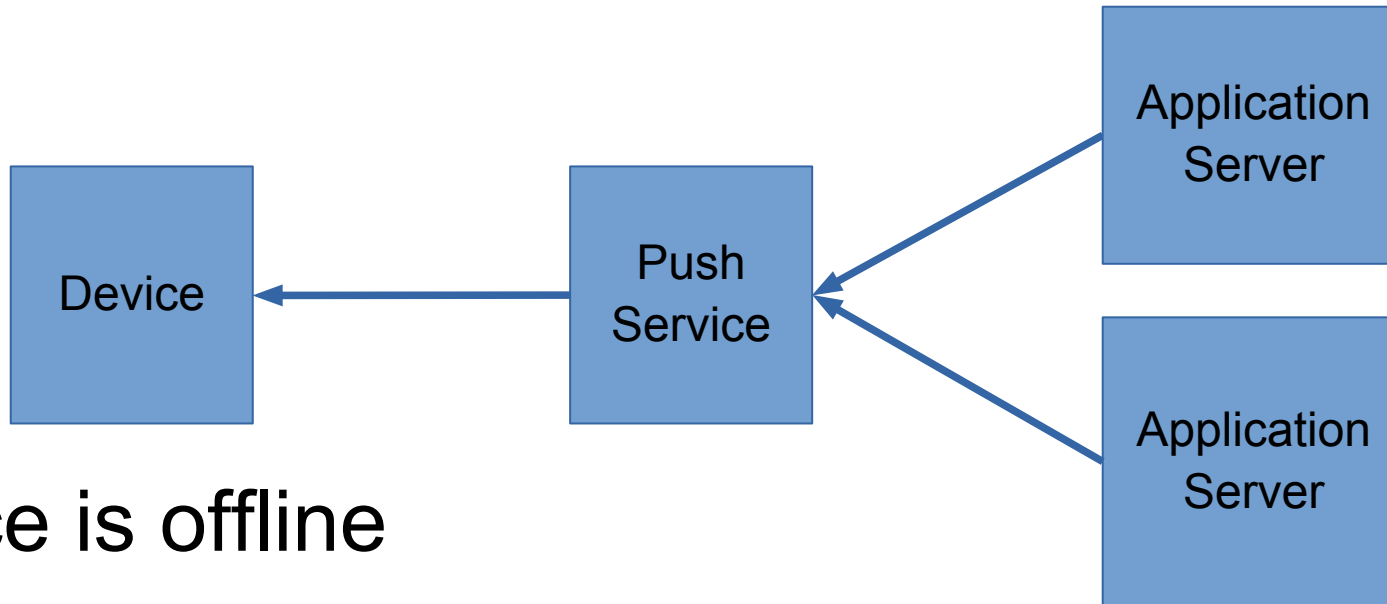Coordinate event streams

[Google Cloud Messaging](#)

[Apple Push Notification Service](#)

[Windows Notification Service](#)

[Blackberry Push Service](#)

And likely many more...

Basic Push Service

Device is offline

Device only responds to push service

Push service is used to forward messages

Push can trigger a switch to online communications
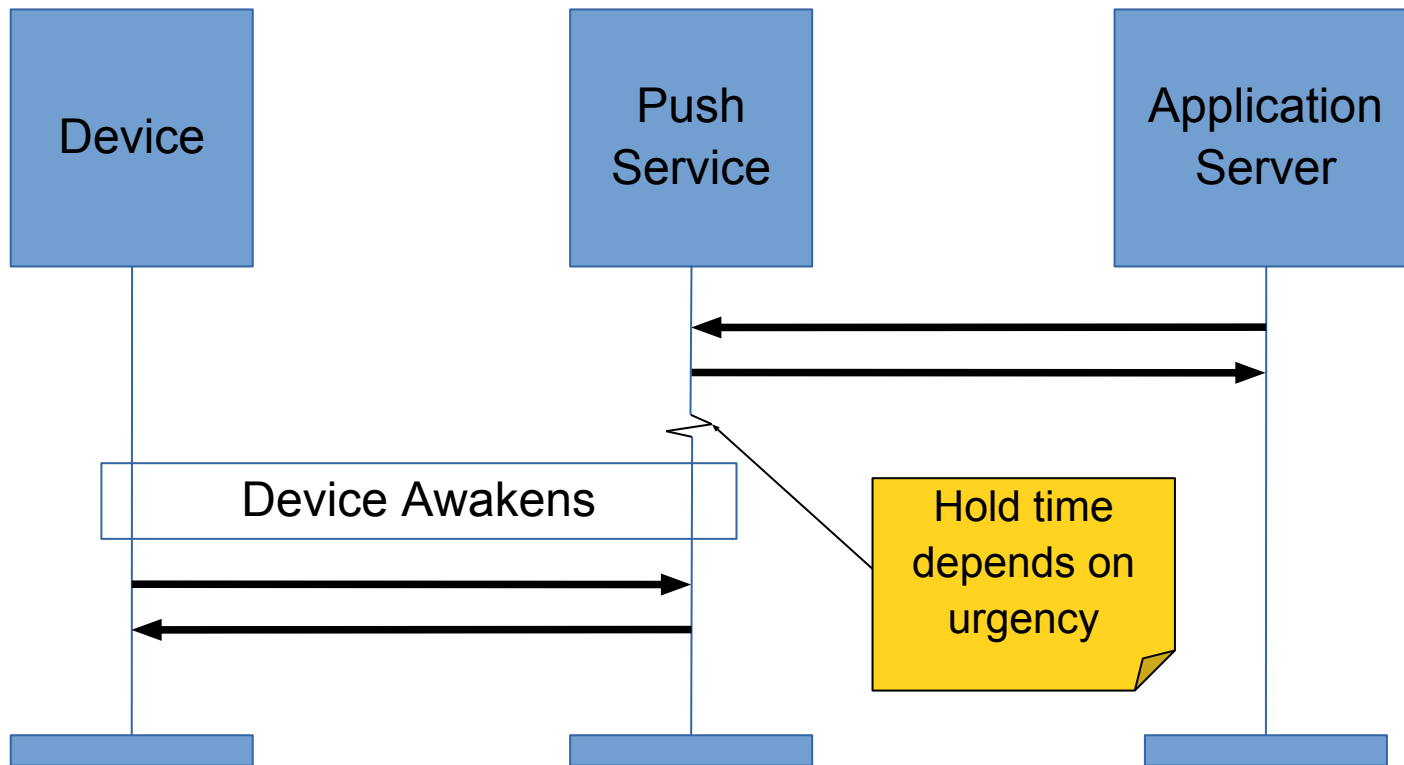
Making it Better

Batching operations saves power

Delaying less important events enables batching

Push services therefore tend to present a store-
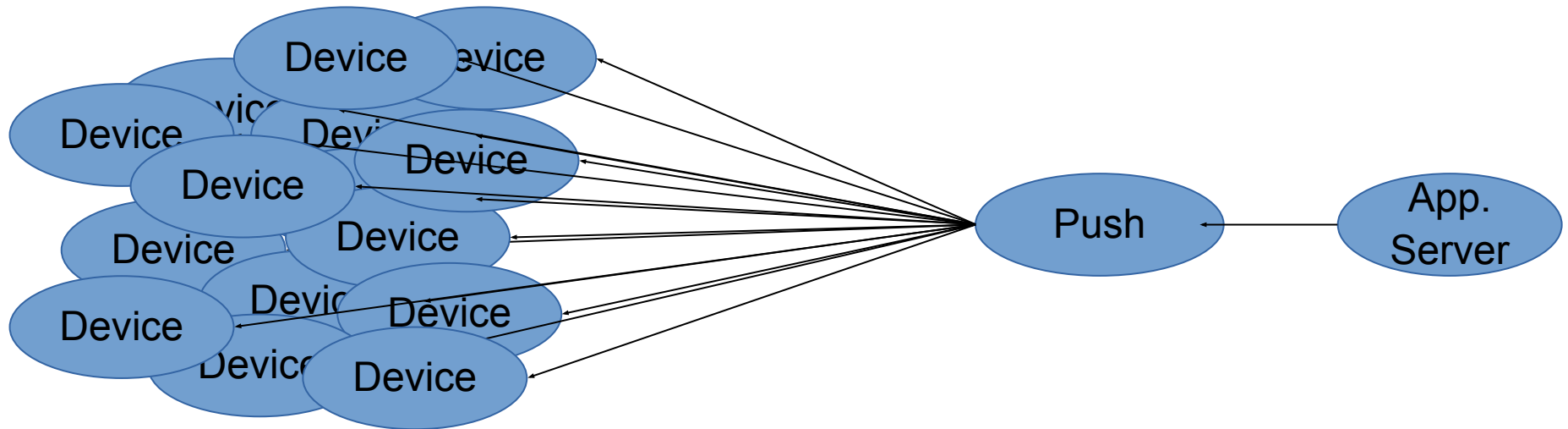and-forward interface

Adds some latency

Broadcast

Send the same message to multiple devices*

* Note: access control required to prevent being a DoS platform

W3C PushAPI (WebApps WG)

Web content facing

Web applications register for push messages

Web applications get a push server URI that can
be used to send push messages

Goals

Define App <-> Push Server Protocol

    Needed for W3C PushAPI

Define Device <-> Push Server Protocol

    Proprietary protocols bridge the gap in the short term

    Decisions here can influence design elsewhere

    Some big opportunities for optimization

Non-goals

Push server discovery

   Device provisioning is good enough initially

Message encryption

  Leave this to the application layer (JOSE, S/MIME, etc.)

Questions?

Charter (1/4) - Background

Many applications require continuous access to network communications so that real-time events - such as incoming calls or messages – can be conveyed ("pushed") to the user in a timely fashion. Uncoordinated use of the network from multiple applications can contribute to unnecessary use of the network by devices. For instance, maintaining sessions can dominate costs over the long term, since events are relatively rare. This is particularly onerous for battery-powered devices, on which network communication contributes a significant portion of power drain. Each independent session independently incurs overheads, causing unnecessary resource usage on devices.

Charter (2/4) - Current State

Several modern computing platforms provide a push notification service that consolidates application events, distributing those events to applications as they arrive. The single session avoids duplicated overhead costs on devices.

Charter (3/4) - Goal

This working group will develop a protocol that applications can use to deliver application data to a device using a consolidated push notification service. This protocol will include the ability to push the same message to multiple devices (broadcast). The work may include an exemplar protocol for devices registering with push services.

Charter (4/4) - Liaison

This work will be done in collaboration with the W3C Webapps Working Group, who are developing the PushAPI for use in web applications (see <http://www.w3.org/TR/push-api/>).

References

[1] Radio states: http://people.cs.umass.edu/~arun/papers/TailEnder.pdf

[2] Uncoordinated = bad: http://rilanalyzer.smart-e.org/rilanalyzer.pdf

Charter proposal:www.ietf.org/mail-archive/web/dispatch/current/msg05560.html