XFS4IoT SP-Dev Workgroup

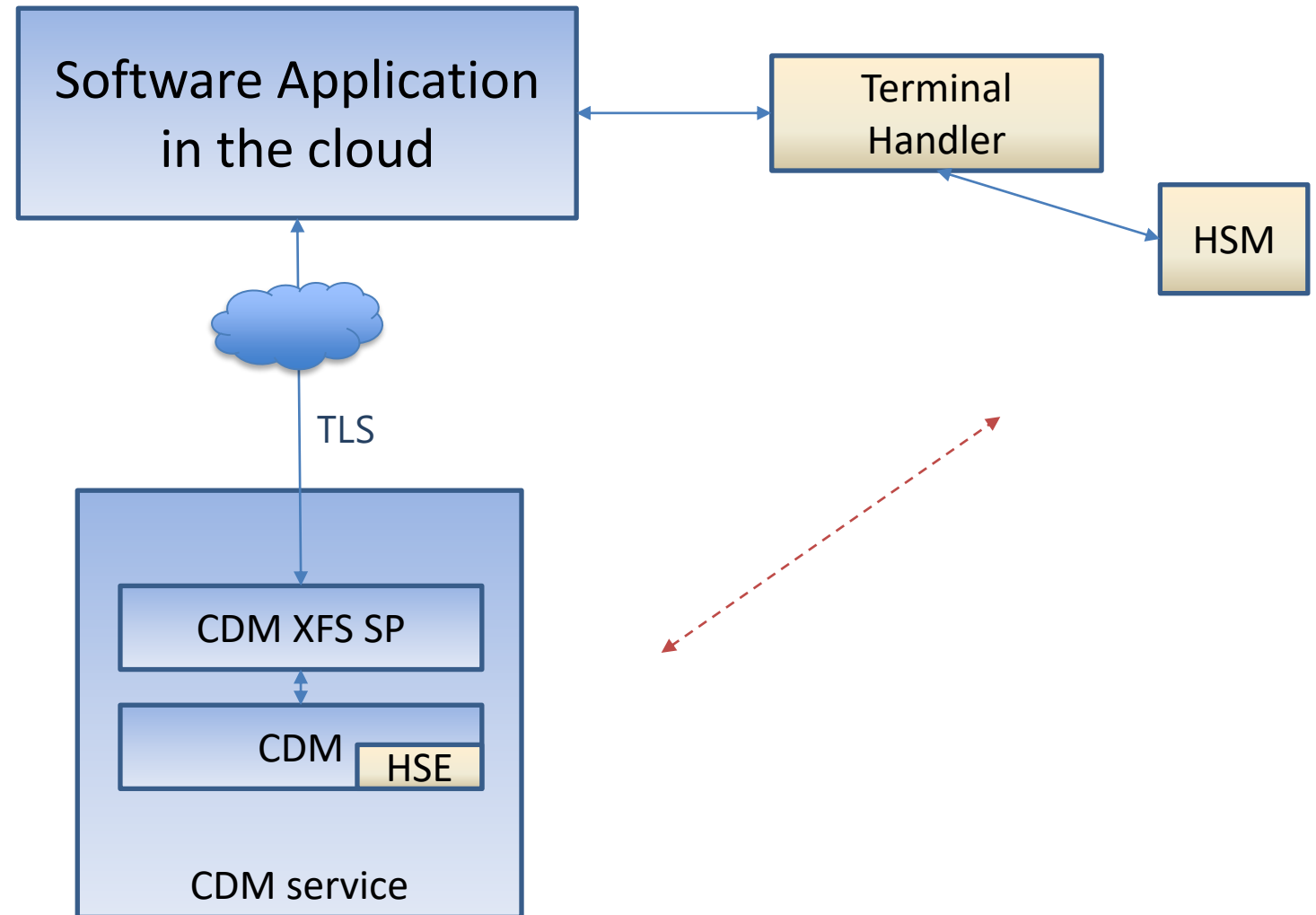4 May 2021

To add others from your company

Please email us at:

xfs4iot_sp-dev_info@kal.com

Recap: XFS4 security

- End-to-end security

- New hardware and firmware needed

- Applications support required

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                          ┌─────────────────────┐          ┌──────────────┐
                          │                     │◄────────►│   Terminal   │
                          │  Software Application│          │   Handler    │
                          │    in the cloud     │          └──────────────┘
                          │                     │                  │
                          └─────────────────────┘                  ▼
                                    ▲                       ┌──────────┐
                                  ☁                         │   HSM    │
                                    │                       └──────────┘
                                  TLS
                          ┌─────────────────────┐
                          │  ┌───────────────┐  │
                          │  │  CDM XFS SP   │  │
                          │  └───────────────┘  │
                          │         ▲           │
                          │  ┌──────┴────────┐  │
                          │  │  CDM  ┌─────┐ │  │
                          │  │       │ HSE │ │  │
                          │  │       └─────┘ │  │
                          │  └───────────────┘  │
                          │     CDM service     │
                          └─────────────────────┘
```

- Transport:

  — TLS

  — WebSockets

- End-to-end security:

  — TR34, TR31 for key distribution

  — XFS4 security token with HMAC protection

Announcing the card reader framework!

- The first SP-Dev framework is now available on GitHub

  —Card reader class

- Members can now start developing card reader SPs

How can workgroup members contribute?

- Ideas for contributions:

  — Development of new XFS4IoT SPs using the framework

  — Development of XFS4 SP simulators using the framework

  — Development of test scripts, test harnesses, etc. for SP testing

  — Development of sample code for new XFS4 applications

  — Pull requests for changes to the framework SP-Dev code

- How can workgroup members contribute?

  — Participate in meetings

  — Ask questions / provide feedback

  — Code reviews of the framework code

  — Raise issues / submit pull requests

  — Implement XFS4IoT SPs for devices and share their experiences

- Will there be more information about E2E security feature?

  — Yes, in the next meetings.

- Can the security feature be used on any XFS-supported device?

  — Yes, if the hardware has an HSE. The current XFS4 spec covers only the

  dispenser and the deposit device, but can be extended.

- Is there a minimum hardware requirement to run XFS4 SPs?

  — KAL will do testing on very small devices and publish the results.

XFS classes and how to add new ones

- Card Reader (IDC) / Card Dispenser (CRD)

- Printer (PTR)

- Cash Dispenser (CDM)

- Cash Acceptor (CIM)

- PIN pad (PIN)

- Sensors/Indicators (SIU)

- Biometrics (BIO)

- Check Readers and Scanners (CHK)

- Scanner (IPM)

- Barcode Readers (BCR)

- Camera (CAM)

- Alarms (ALM)

- Text Terminal (TTU)

- API

  — Non device specific

  — Common across multiple classes

- VDM: Vendor Mode / Vendor Application

  — Standard interface for vendor-specific software

- Cash Management

- Crypto

- Key Management

- Keyboard

- Merge of CRD into IDC

- Service discovery in API

- CEN/XFS Committee

- Proposal

- Discussion

- Consensus between members

- Add to specification

- Publication

- Ideas to consider:

  — Ink staining of cash

  — Door popper

  — Anti-skimmers

  — Video system

  — Safe lock

Committee may be open to considering new devices
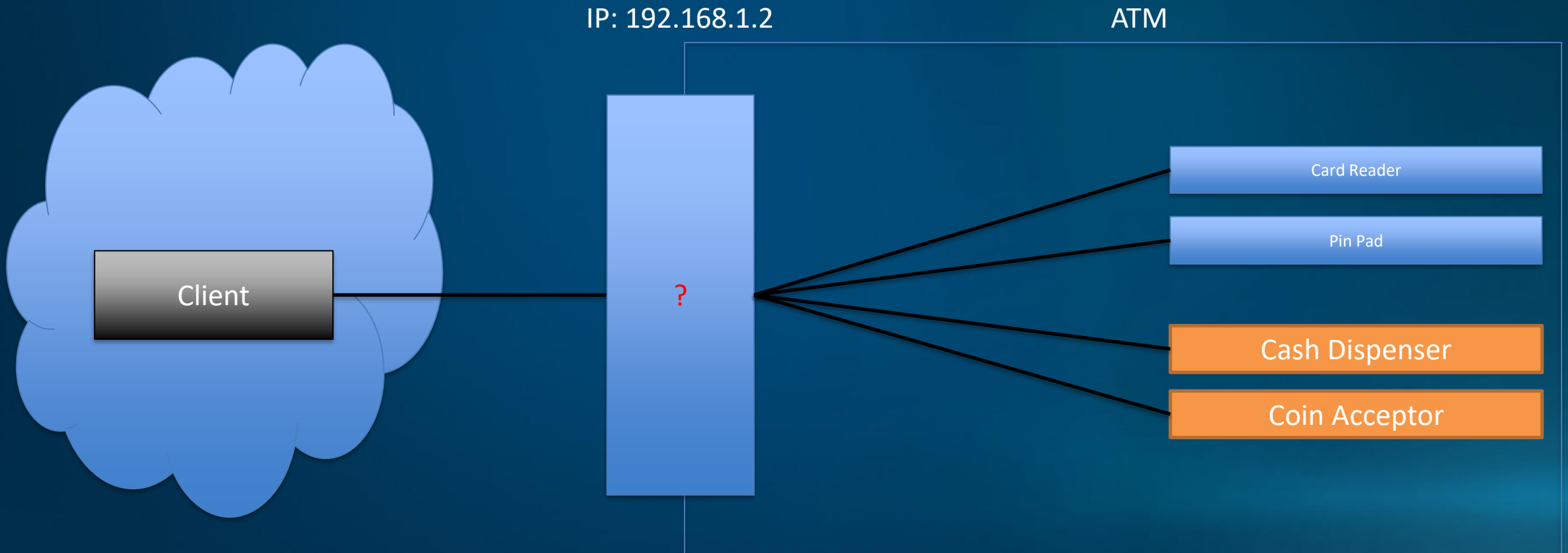
XFS4IoT service discovery

Connecting to services

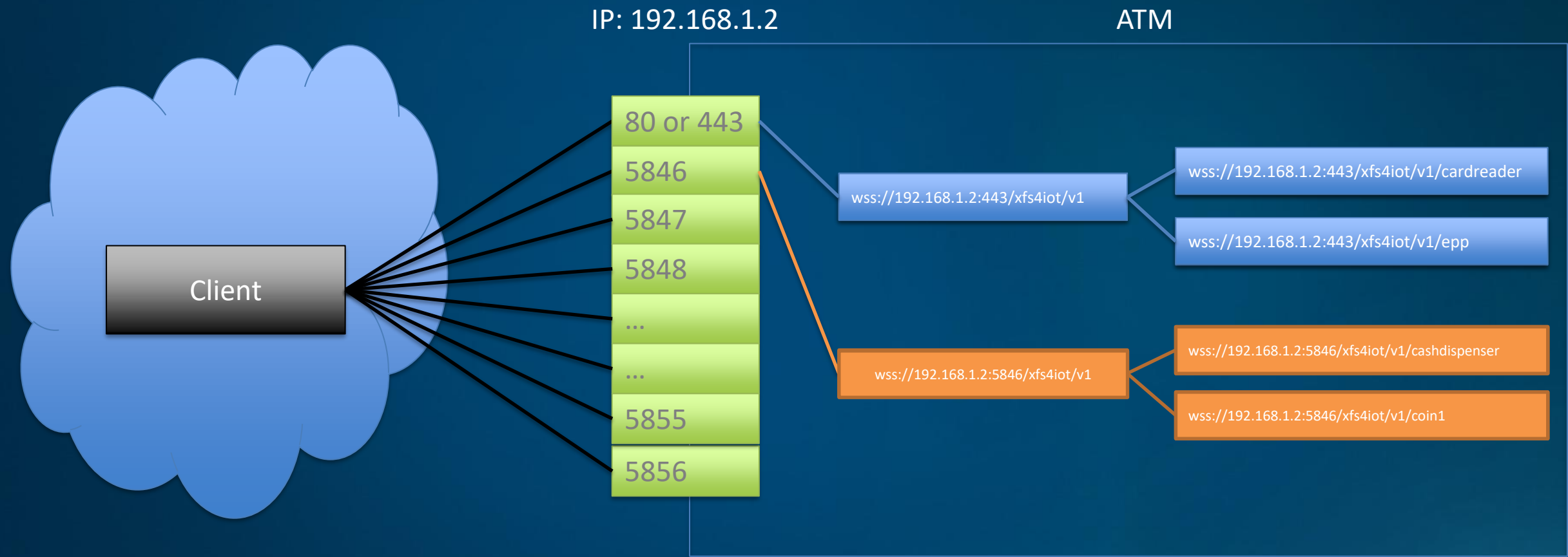© 2021 KAL ATM Software GmbH (KAL)
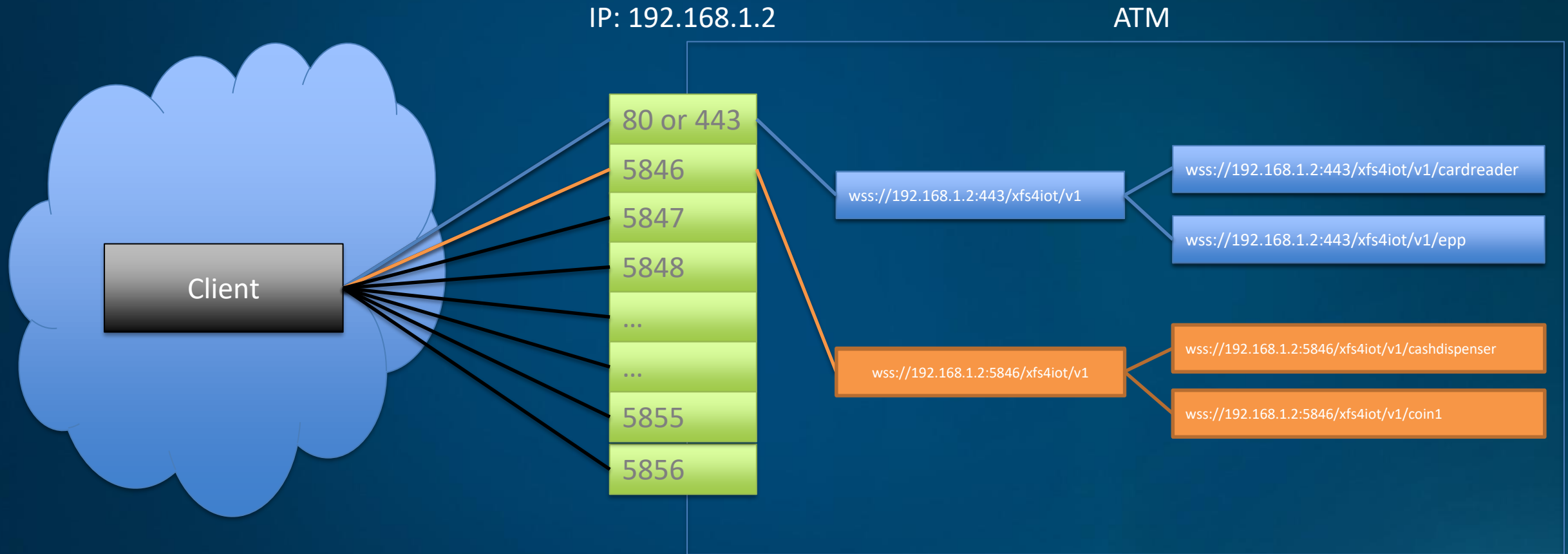
Why no XFS Manager?

- Multiple implementations

- Which version do you use?

- Who supports it?

- When there's a problem, is it the service provider or the manager?

- Single point of failure

- Not relevant for network environment

- No longer needed

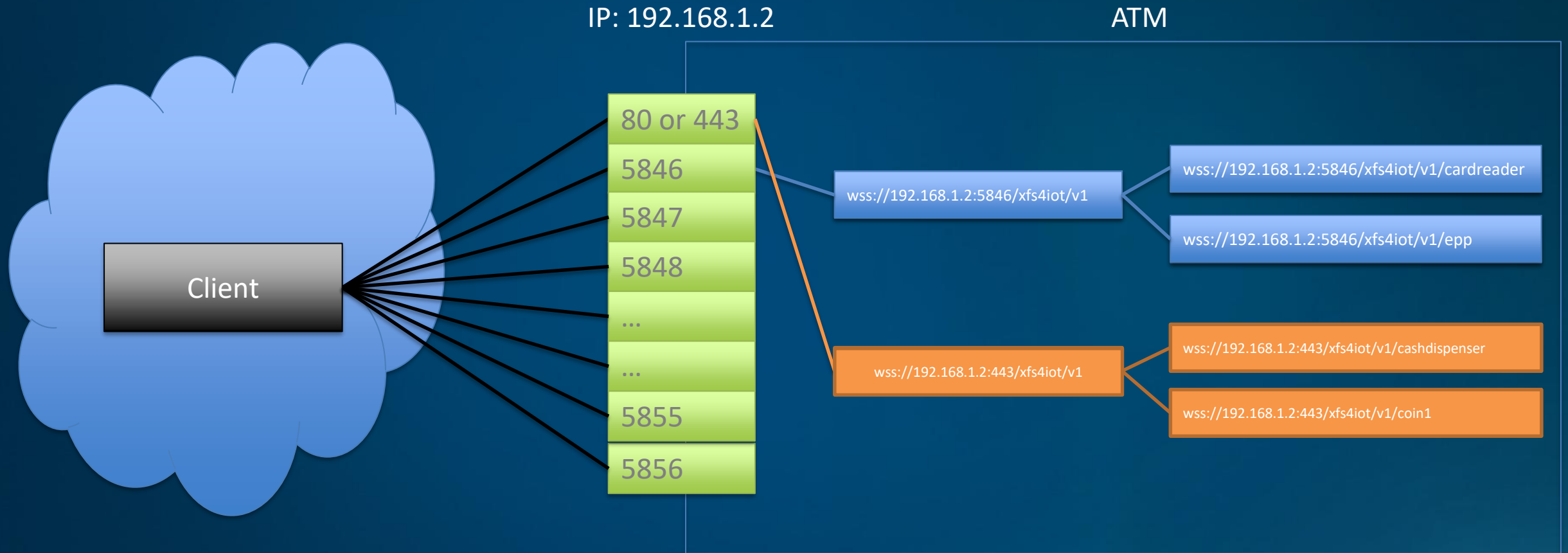# Service discovery

- You have an IP address, you need to find the services
- We don't want a shared 'discovery' component

IP: 192.168.1.2

ATM

Client

?

Card Reader

Pin Pad

Cash Dispenser

Coin Acceptor

Service discovery

Service discovery

Service discovery

IP: 192.168.1.2

ATM

Client

80 or 443

5846

5847

5848

...

...

5855

5856

wss://192.168.1.2:5846/xfs4iot/v1

wss://192.168.1.2:5846/xfs4iot/v1/cardreader

wss://192.168.1.2:5846/xfs4iot/v1/epp

wss://192.168.1.2:443/xfs4iot/v1

wss://192.168.1.2:443/xfs4iot/v1/cashdispenser

wss://192.168.1.2:443/xfs4iot/v1/coin1

Service discovery

IP: 192.168.1.2

ATM

Client

80 or 443
5846
5847
5848
...
...
5855
5856

wss://192.168.1.2:5846/xfs4iot/v1

wss://192.168.1.2:5846/xfs4iot/v1/cardreader

wss://192.168.1.2:5846/xfs4iot/v1/epp

wss://192.168.1.2:443/xfs4iot/v1

wss://192.168.1.2:443/xfs4iot/v1/cashdispenser

wss://192.168.1.2:443/xfs4iot/v1/coin1

Card Reader framework

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MS Teams

Video calls every two weeks: Tuesdays at 1300 UK time
(we will move to calls once a month from June onwards)

Next call: 18th May 2021, 1300 UK, 0800 US EST, 2100 Tokyo time