Kepware Technologies

Tunneling with KEPServerEX

Part One of Our Webinar Series “KEPServerEX: Beyond Device Communications”

NOVOTEK

Agenda

1. What is Tunneling?
2. What Makes a Great Tunneling Protocol?
3. Tunneling with KEPServerEX
4. Summary

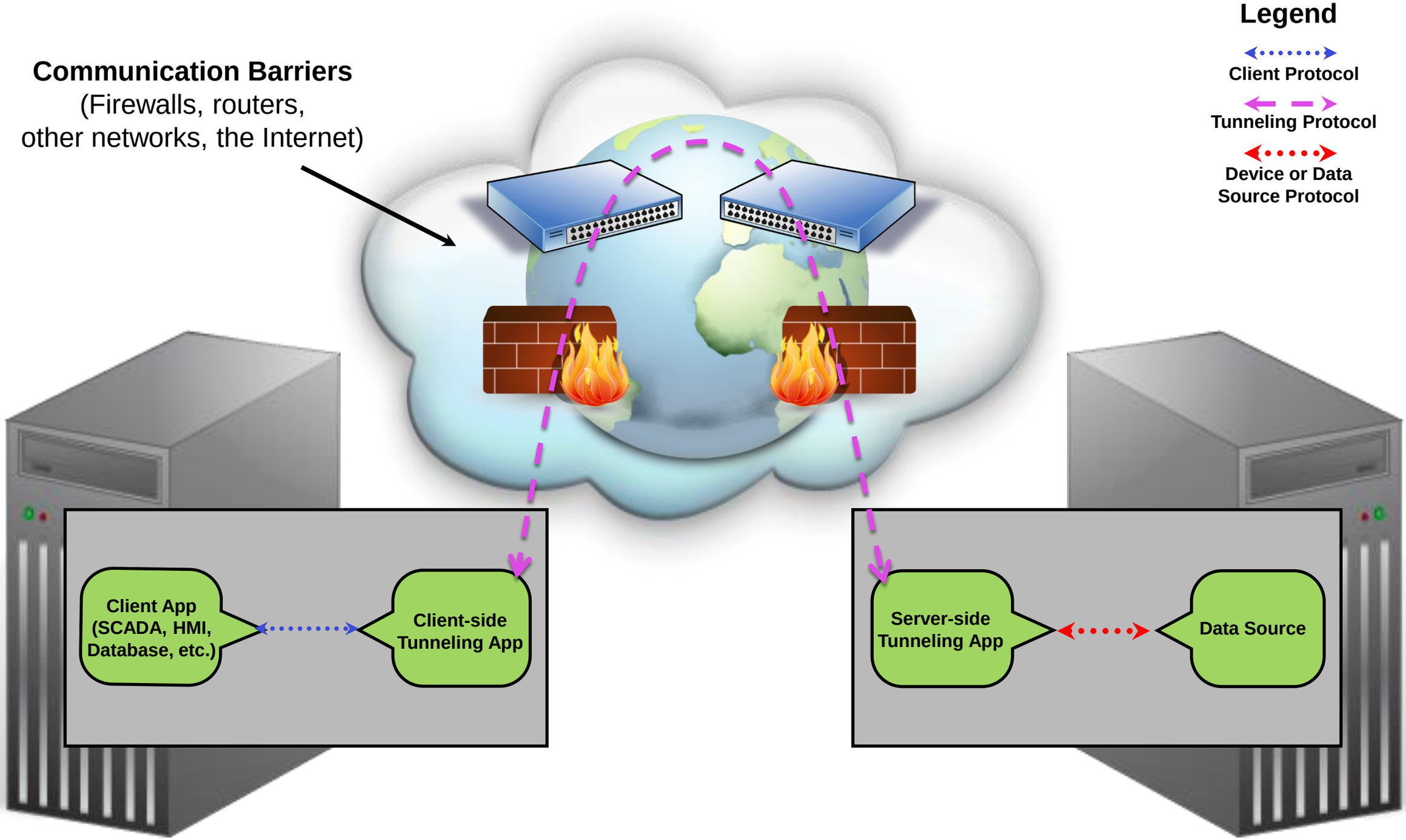
What is Tunneling?

What does “tunneling” mean in this context?

Creating a communications path between two points through barriers

What Does a Tunnel Look Like?

Communication Barriers
(Firewalls, routers,
other networks, the Internet)



Legend

Client Protocol

Tunneling Protocol

Device or Data
Source Protocol

What is Tunneling?

What would someone want to tunnel?

Enable communications across networks, routers, and Firewalls (i.e. the Internet)

Perhaps to:

- Allow an OPC DA client on one network to talk to a device or an OPC DA server on a different network
- Allow a non-OPC client on one network to talk to a device or OPC DA server on a different network
- Enable a device on one network to exchange data with a device on another network

Add security to communications

- Some protocols are open and understandable by anyone with the protocol guide (like Modbus RTU)

What Makes a Great Tunneling Product?

Easy Setup	Users shouldn't have to work with something as difficult as DCOM in order to avoid working with DCOM
Robust Client Interfaces	Users might want to tunnel a protocol other than OPC DA (maybe DDE, SuiteLink, etc.)
Robust Device Support	Users might benefit if their server-side application talked to PLCs and other data sources
Multi-Threaded	• Ability to handle multiple client-side connections without performance degradation • Ability to handle multiple server-side connections without performance degradation
Scalable	• Consistent performance for large and small data sets • Ability to tunnel to multiple targets from a single application • Configuration options to finely tune performance
Robust Diagnostics	Server-side and client-side diagnostic tools to make troubleshooting easier

Tunneling with KEPServerEX

Tunneling with KEPServerEX

Communication Barriers
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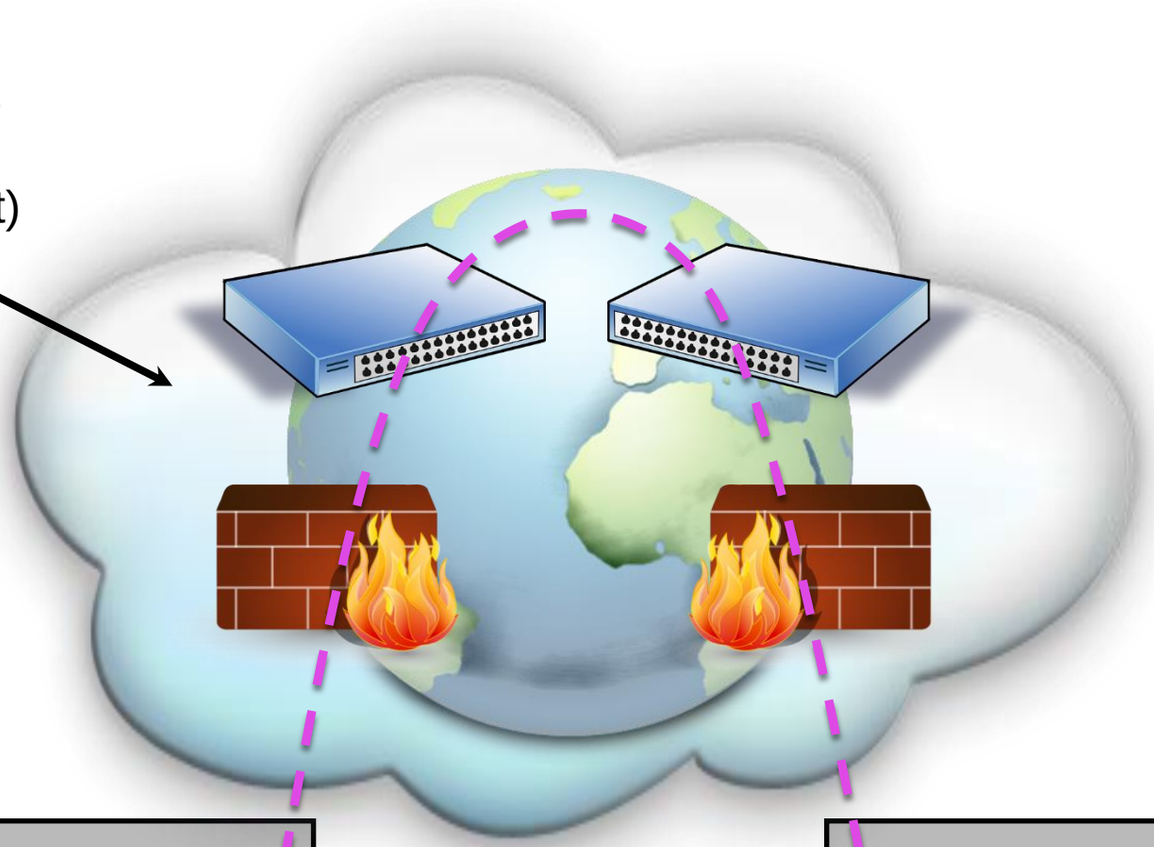

Legend

Client Protocol (OPC DA, OPC .NET, OPC XML-DA, DDE, SuiteLink, NIO, etc.)

OPC UA

Device or Data Source Protocol

Client App (SCADA, HMI, Database, etc.)

KEPServerEX with OPC UA Client Driver

KEPServerEX with OPC UA Server Endpoint

Data Source

Tunneling with KEPServerEX

Tunnel in Action: Report Data by Exception

Communication Barriers
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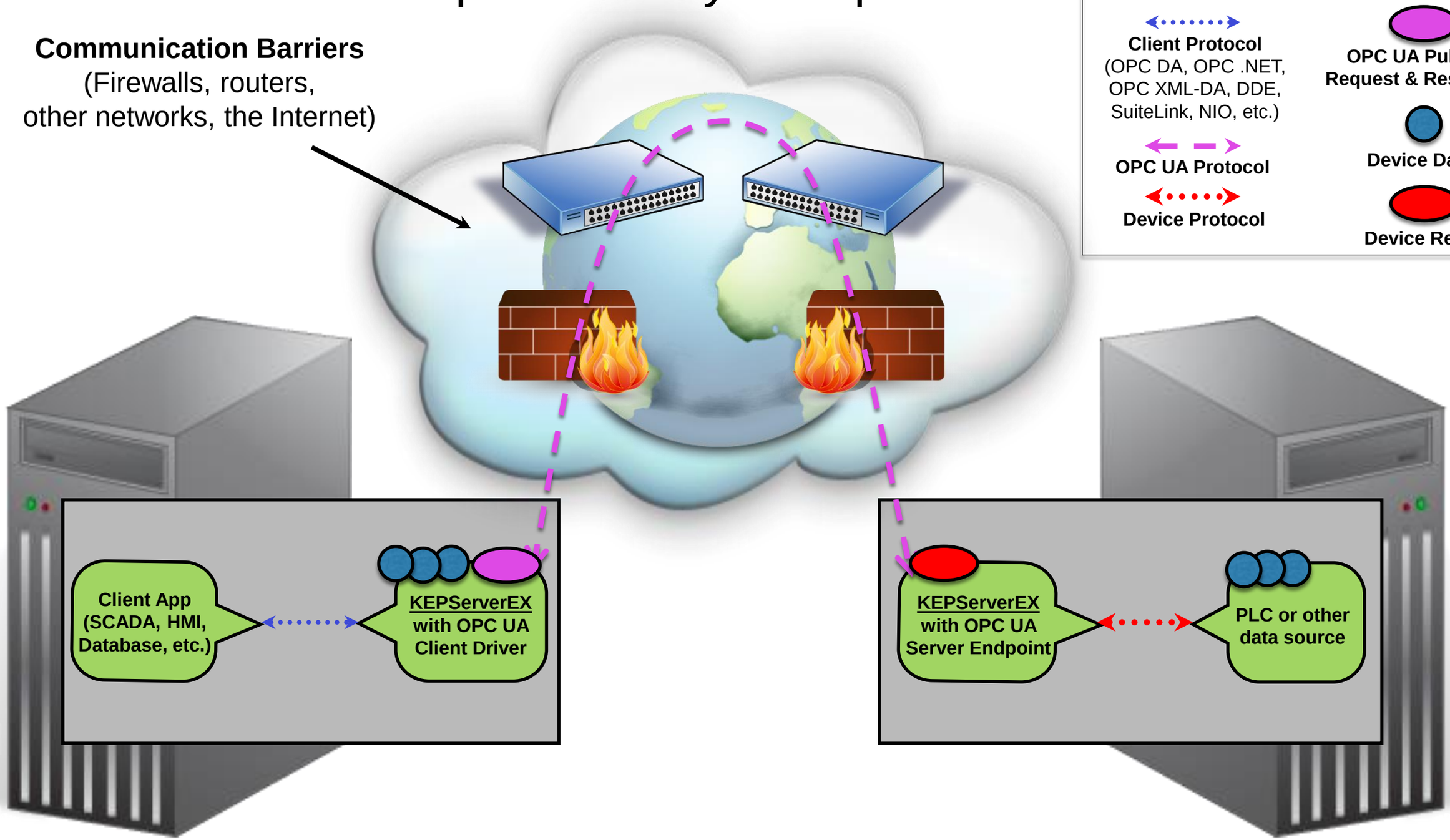

Legend

- **Client Protocol** (OPC DA, OPC .NET, OPC XML-DA, DDE, SuiteLink, NIO, etc.)
- **OPC UA Protocol**
- **Device Protocol**
- **OPC UA Publish Request & Response**
- **Device Data**
- **Device Read**

Tunneling with KEPServerEX

Tunnel in Action: Report Data by Exception

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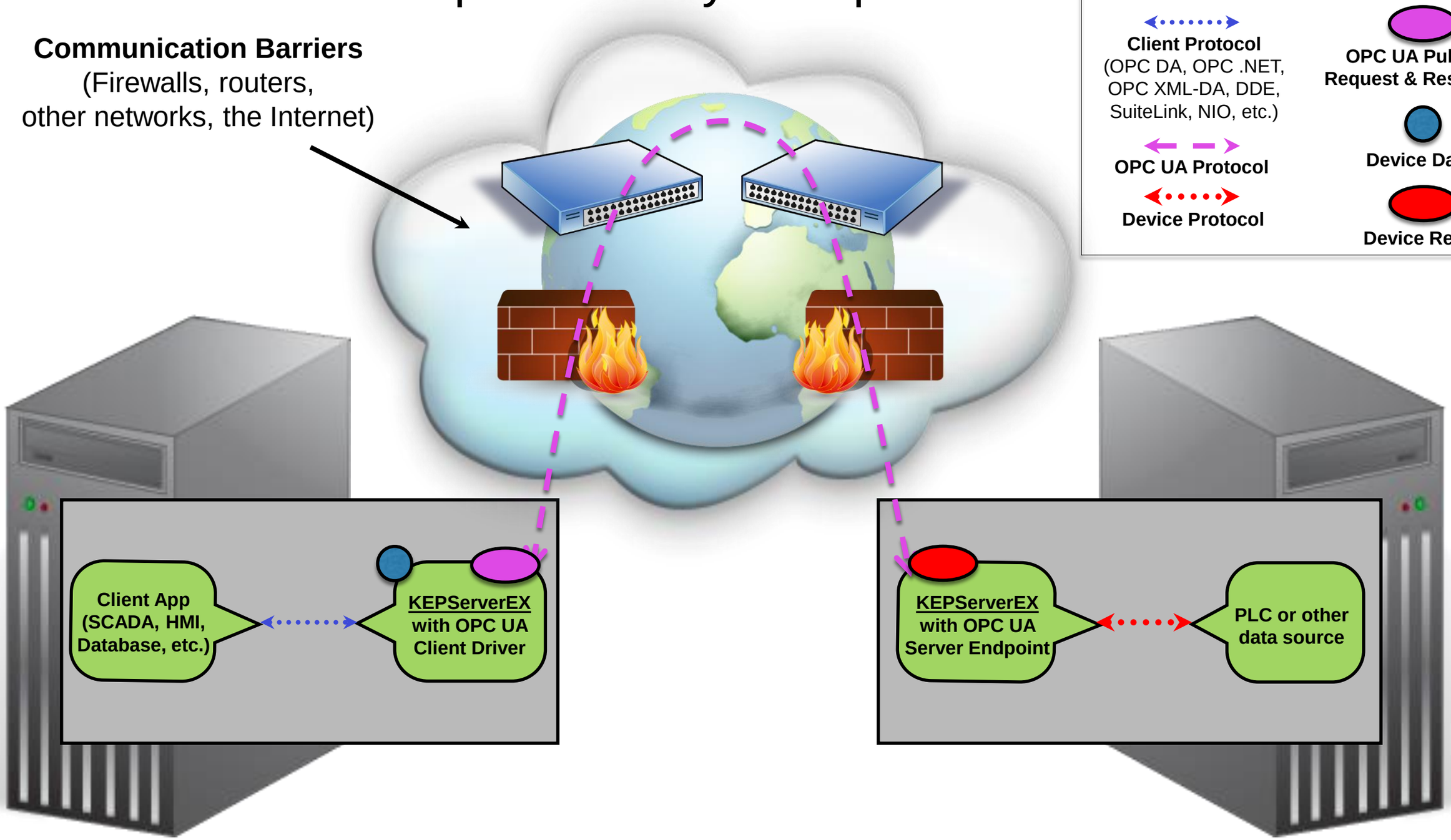

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Tunneling with KEPServerEX

Tunnel in Action: Polling

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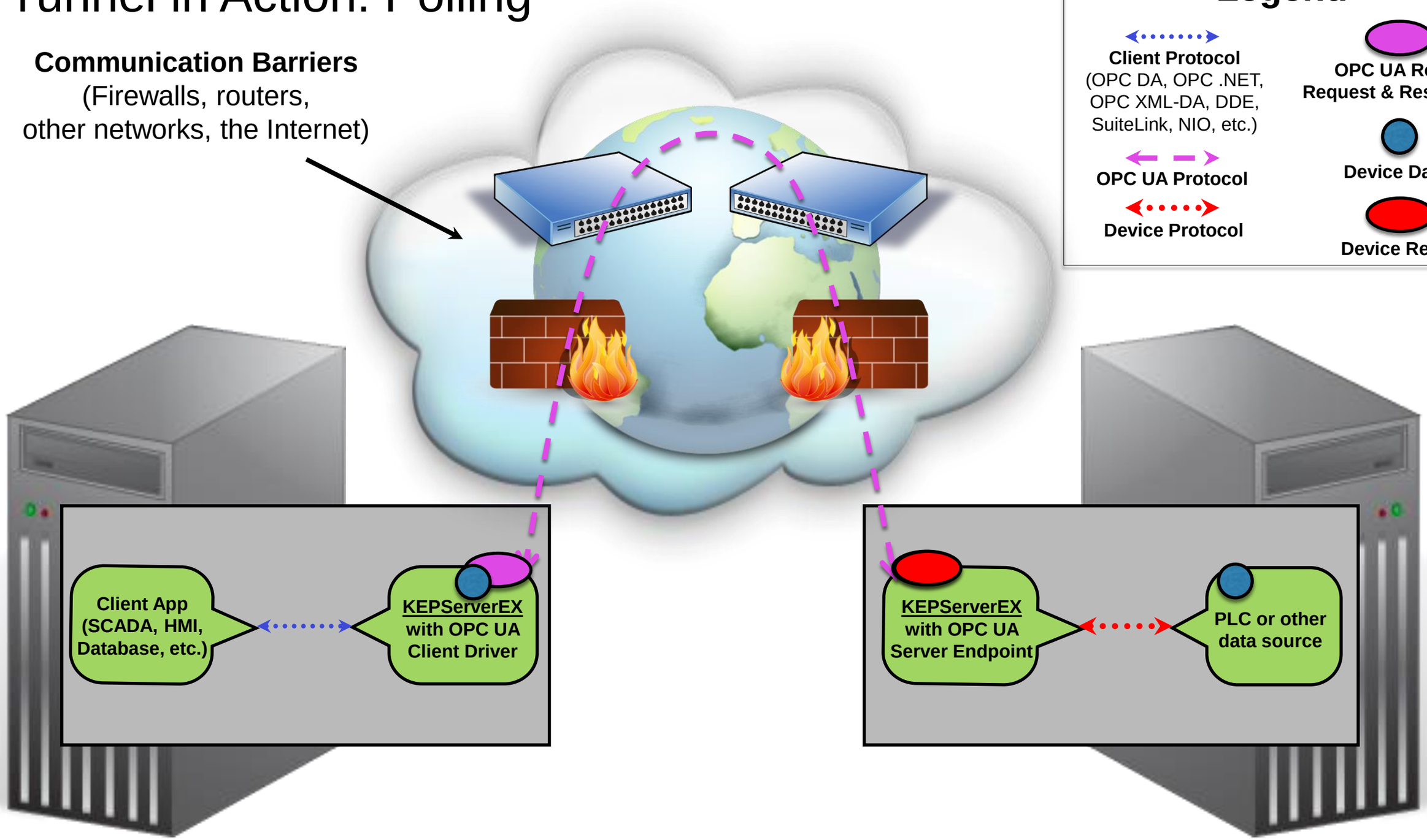

Legend

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- **Device Read**

Tunneling with KEPServerEX

Tunnel in Action: Polling

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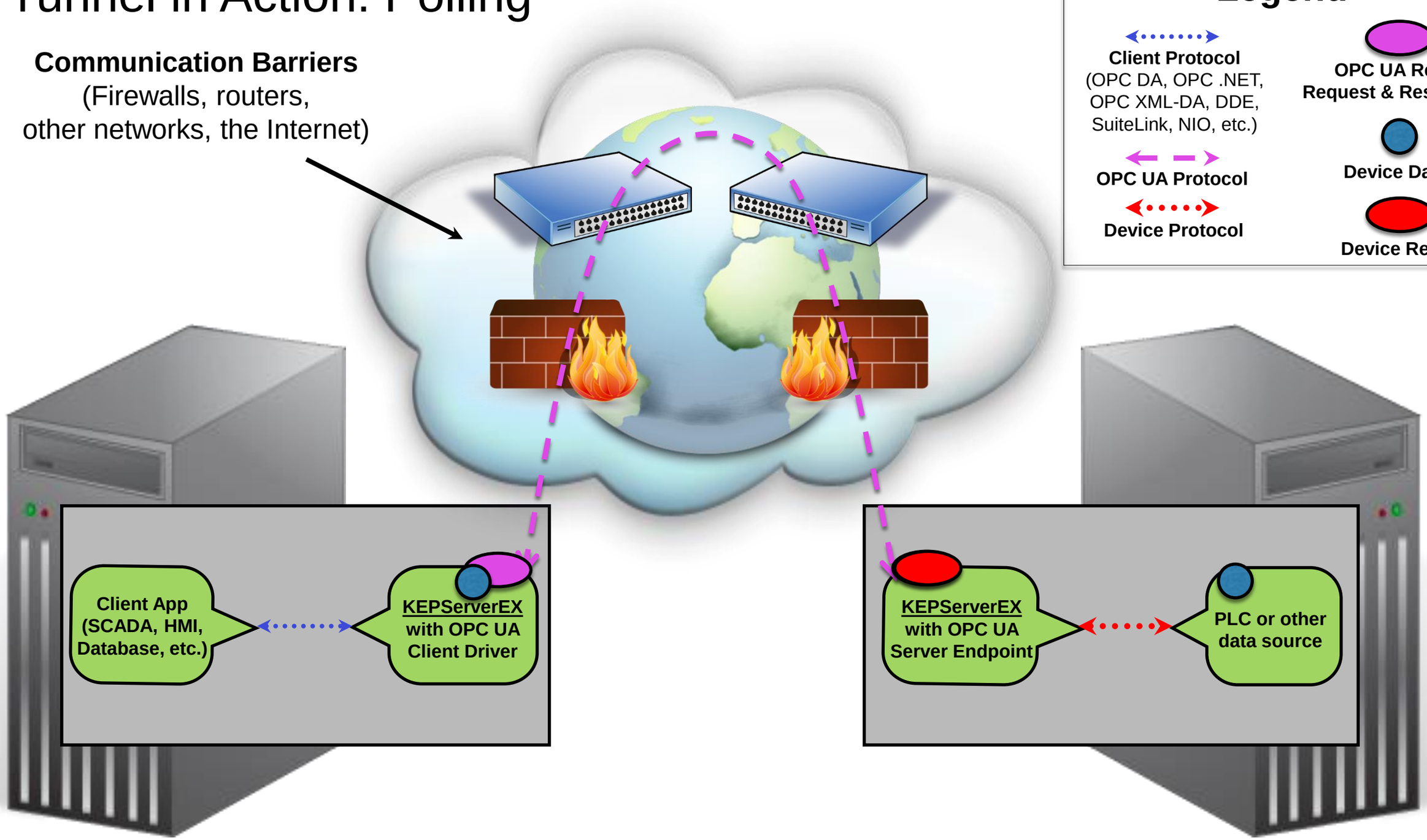

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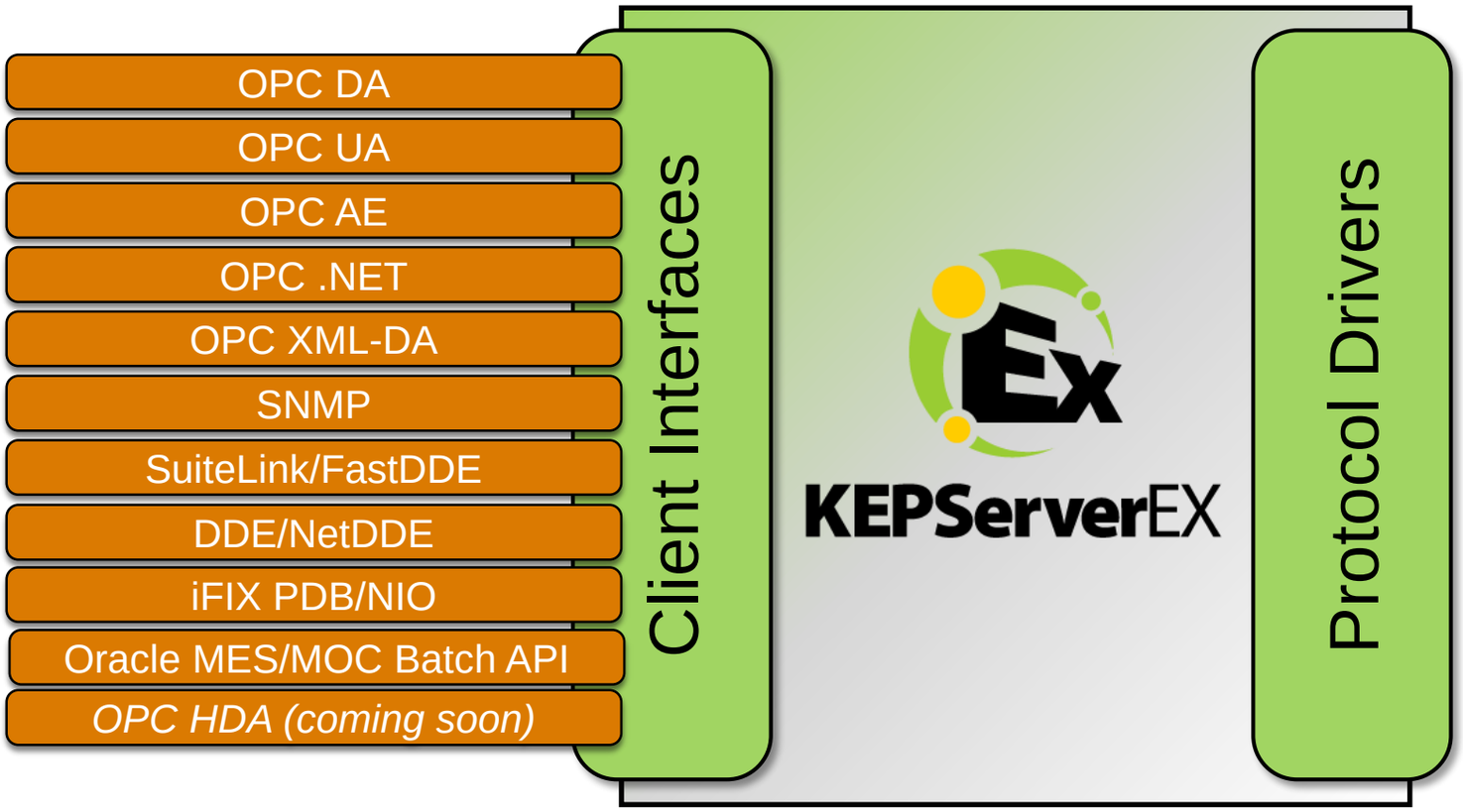
Tunneling with KEPServerEX

Robust Client Interfaces

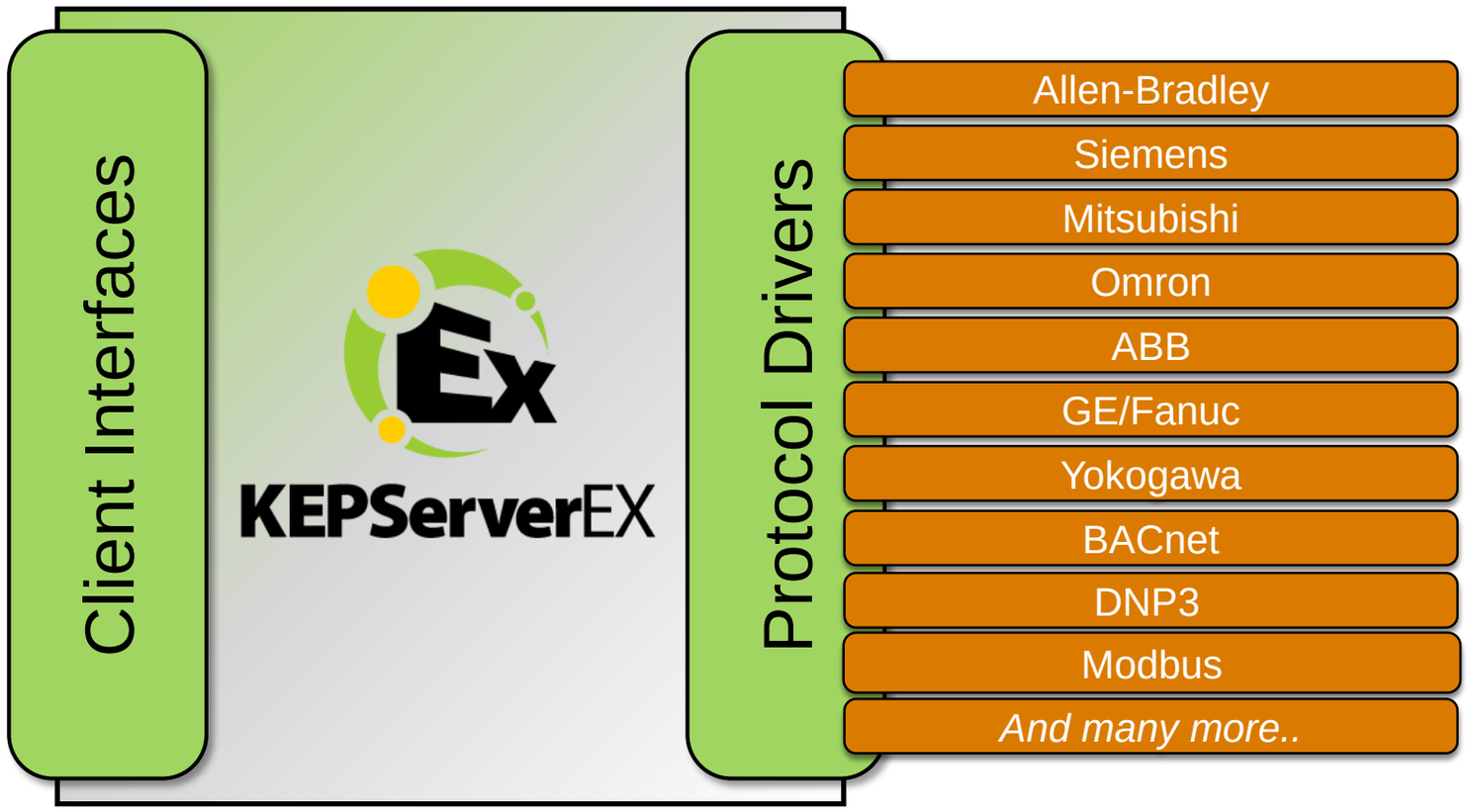
Client interface support includes OPC DA, OPC UA, OPC AE, OPC .NET, OPC XML-DA, SNMP, SuiteLink/FastDDE, DDE, NetDDE, iFIX PDB/NIO, Oracle MES/MOC Batch API, and OPC HDA (coming soon)



Tunneling with KEPServerEX

Robust Device Support

KEPServerEX offers over 150 drivers that support over 300 unique communications protocols



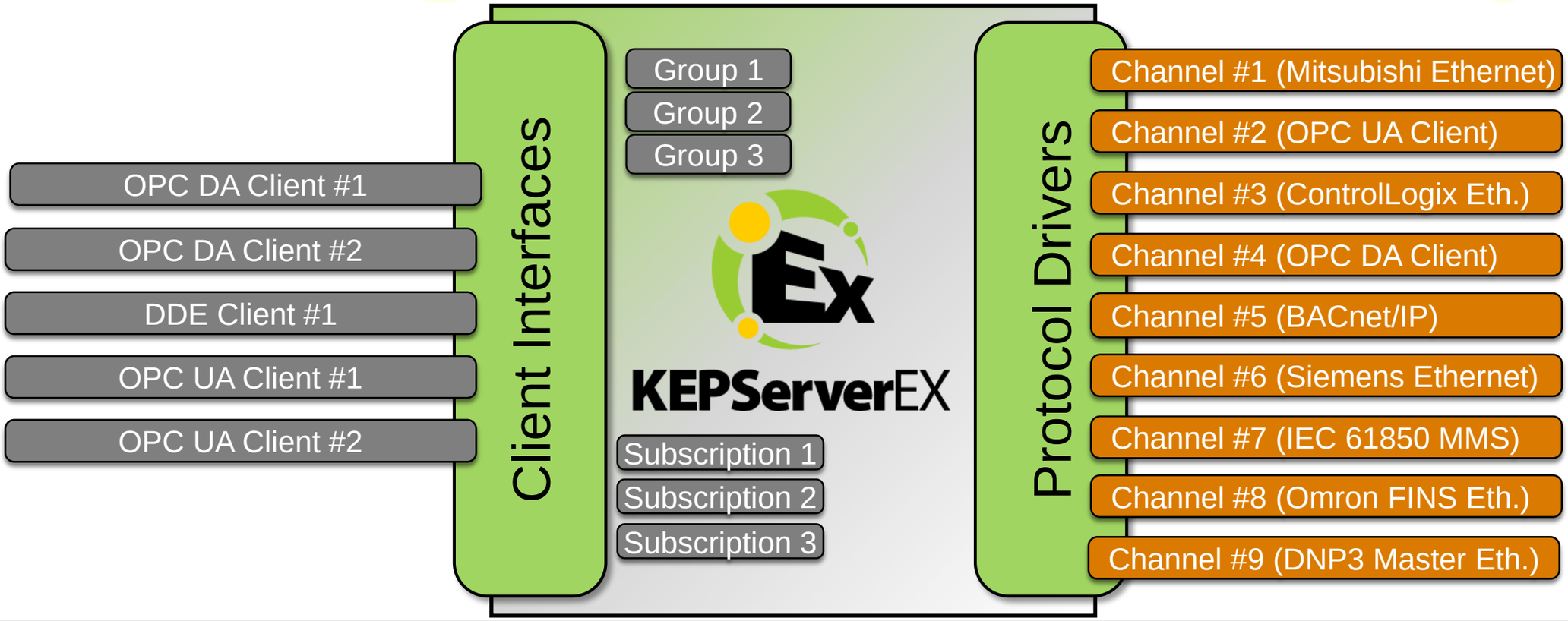
Tunneling with KEPServerEX

Multi-Threaded

The KEPServerEX Communications Platform is highly multithreaded

- Each client connection is assigned its own thread
- Each OPC group or subscription that an OPC client adds is assigned its own thread
- Each Channel in the KEPServerEX project is assigned its own thread

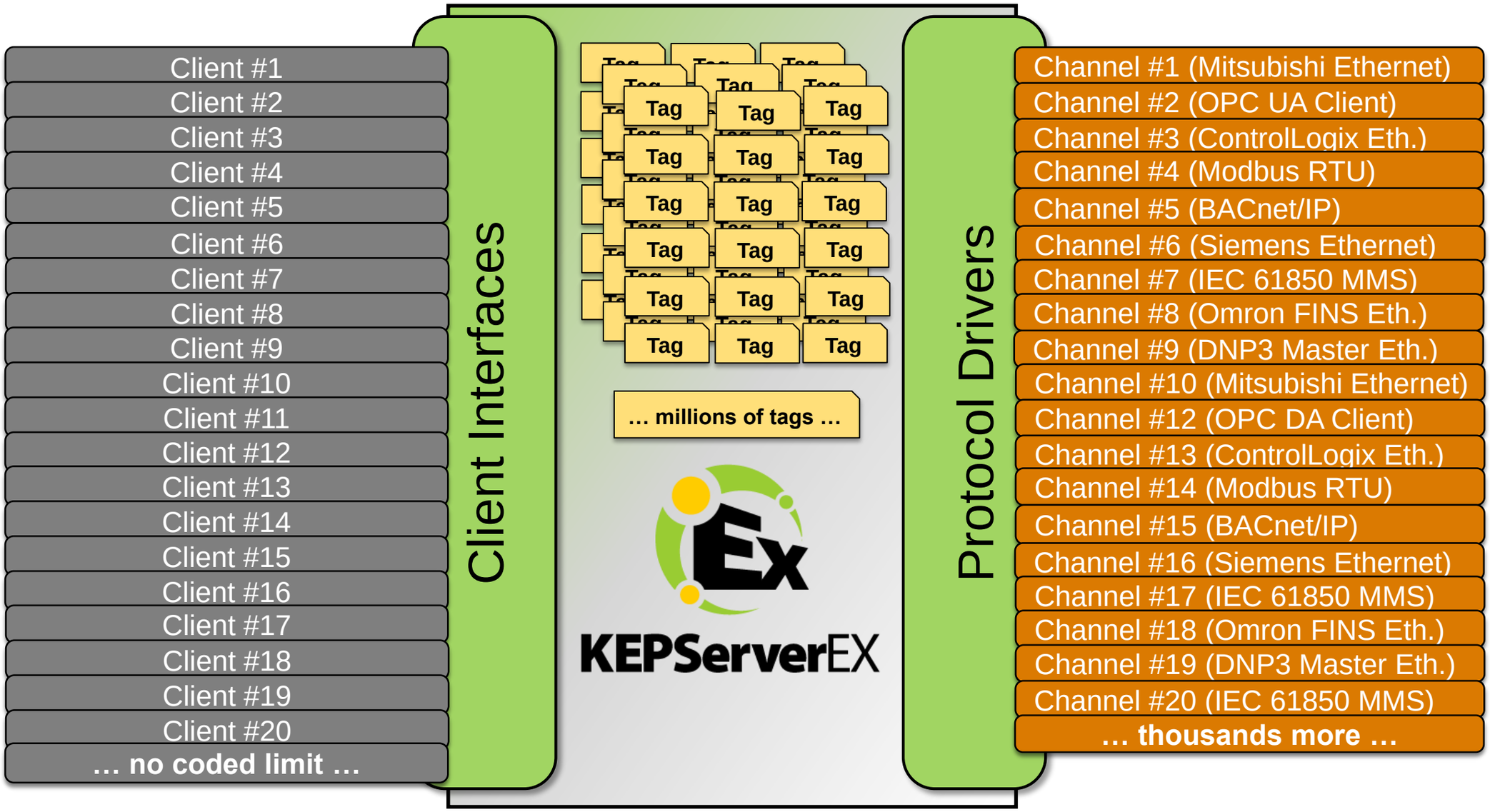
Multithreading Increases Performance and Stability!



Tunneling with KEPServerEX

Scalable

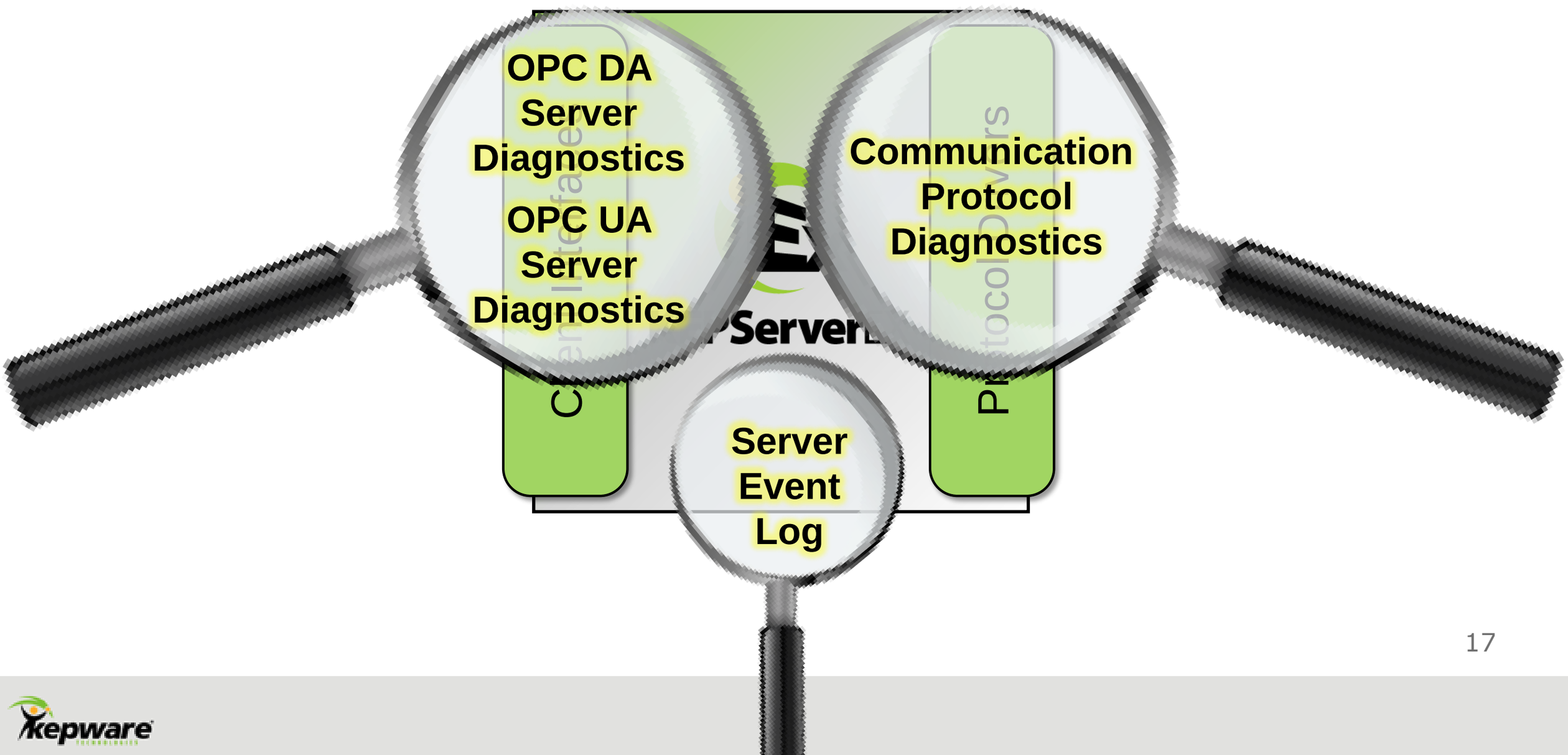
A single copy of KEPServerEX can scale to communicate to hundreds of clients, thousands of devices, and millions of tags



Tunneling with KEPServerEX

Diagnostic Tools

KEPServerEX includes OPC DA server communication diagnostics, OPC UA server connection diagnostics, channel and device-level communication protocol diagnostics, and robust server event logging



Tunneling with KEPServerEX

Easy Setup

A KEPServerEX solution can be configured in five easy steps

1. KEPServerEX is installed on the OPC DA client machine
2. KEPServerEX is installed on the OPC DA server machine
3. An OPC UA server endpoint is configured in KEPServerEX on the server machine
4. The OPC UA Client Driver is configured in KEPServerEX on the client machine
5. Tag databases are imported on the server machine and client machine

System and Product Requirements

Tunneling with KEPServerEX

Required Products:

Client-side Tunnel Components

1 x OPC UA Client Driver

1 x KEPServerEX Platform

(provided for free with purchase of driver or plugin)

Server-side Tunnel Components

1 x Driver or Plugin

1 x KEPServerEX Platform

(provided for free with purchase of driver or plugin)

Tunneling with KEPServerEX

System Requirements:

Client-side Tunnel Components

KEPServerEX Platform 1

200 MB Disk Space

2 GHz Processor

1 GB RAM

Server-side Tunnel Components

KEPServerEX Platform 2

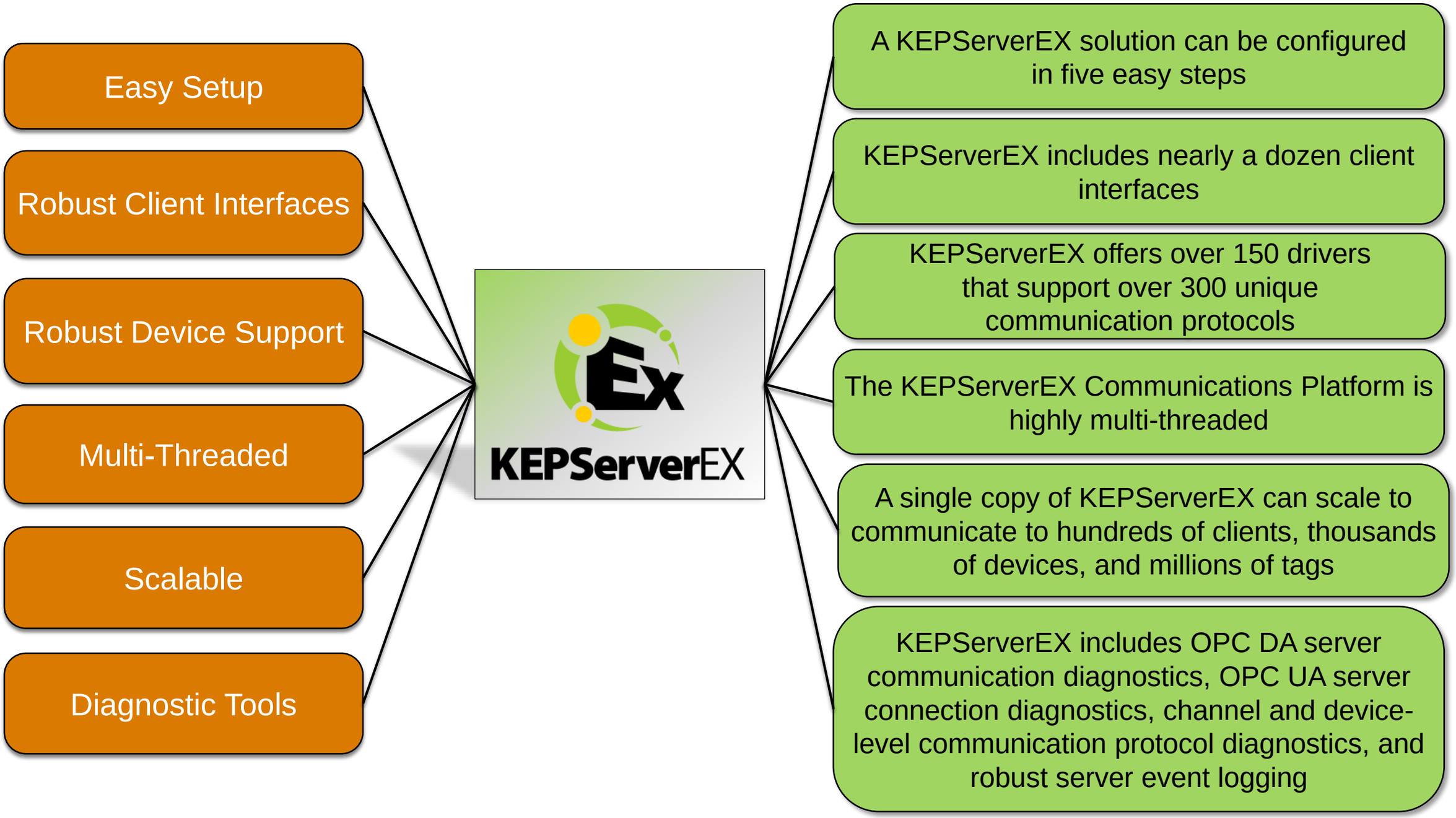
200 MB Disk Space

2 GHz Processor

1 GB RAM

Summary

KEPServerEX: A Great Tunneling Product



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