



CCNx 1.0 Software APIs Architectural Overview

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CCNx Socket API

Open, Close

Create a socket configured with a specific assembly of Transport Stack components.

Read, Write

Synchronous/Asynchronous receipt and transmission of Interests and Content Objects.

Control

Transport software stack configuration.

CCNx Socket API

`ccnxSocket_Open` Open a CCN socket
`ccnxSocket_Close` Close a CCN socket.
`ccnxSocket_Listen` Listen for Interests.
`ccnxSocket_Read` Read a CCN Message.
`ccnxSocket_Write` Write a CCN Message.

CCNx Key Value API

Abstracts away Interests and Content Objects.

Files, services, devices are named resources.

Primitives for Create, Read, Update, Delete.

Primitives for ACID semantics and lock-free modification.

CCNx Key Value API

ccnxKV_Announce Announce that the given named entity is available here.

ccnxKV_Create Create a named entity with content.

ccnxKV_Read Read the content of a named entity.

ccnxKV_Update Update the content of an existing named entity.

ccnxKV_Delete Deletes the named entity.

ccnxKV_GetProperties Get the properties for the named entity.

ccnxKV_SetProperties Set the properties for the named entity.

ccnxKV_Copy Copy the content of an existing named entity to a new named entity.

ccnxKV_Rename Rename an existing entity from one name to another new name.

ccnxKV_Lock Lock a named entity.

ccnxKV_Unlock Unlock a named entity.

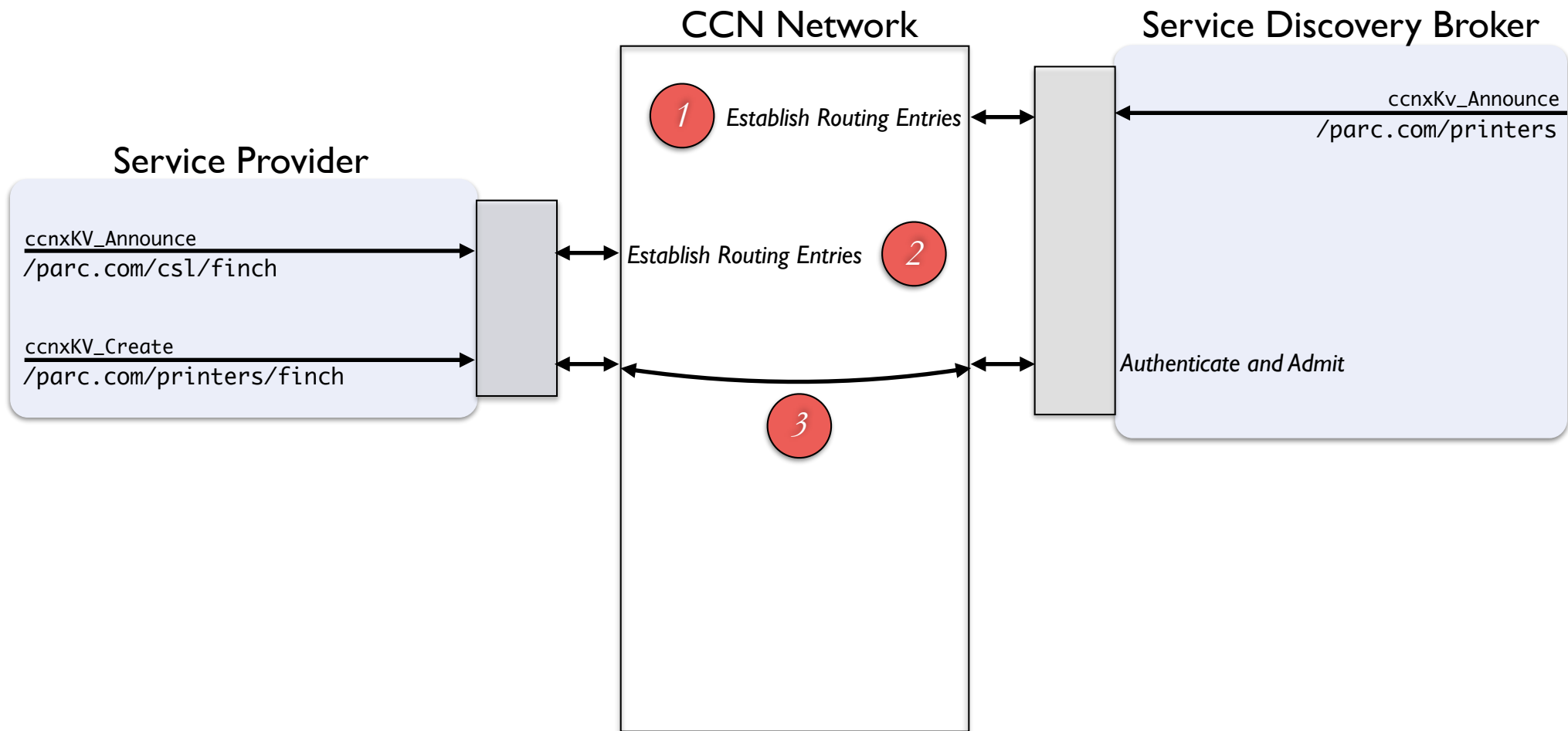
ccnxKV_Identity Represent the identity of a requester or provider.

ccnxKV_Cancel Cancel a previously established, asynchronous operation.

ccnxKV_Wait Wait for previously established, asynchronous operation.

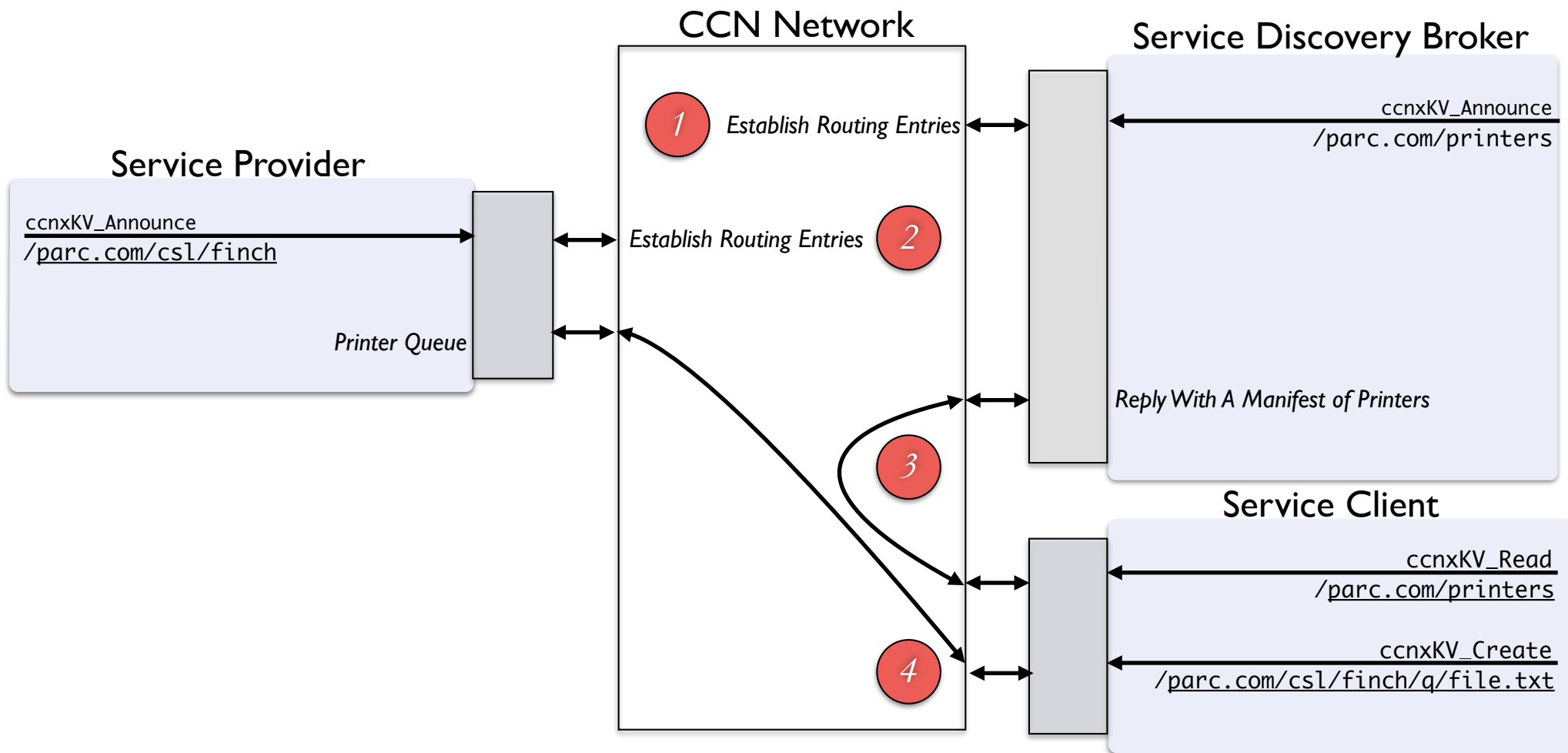
Simple Service Discovery

Admission via the CCNx Key Value API



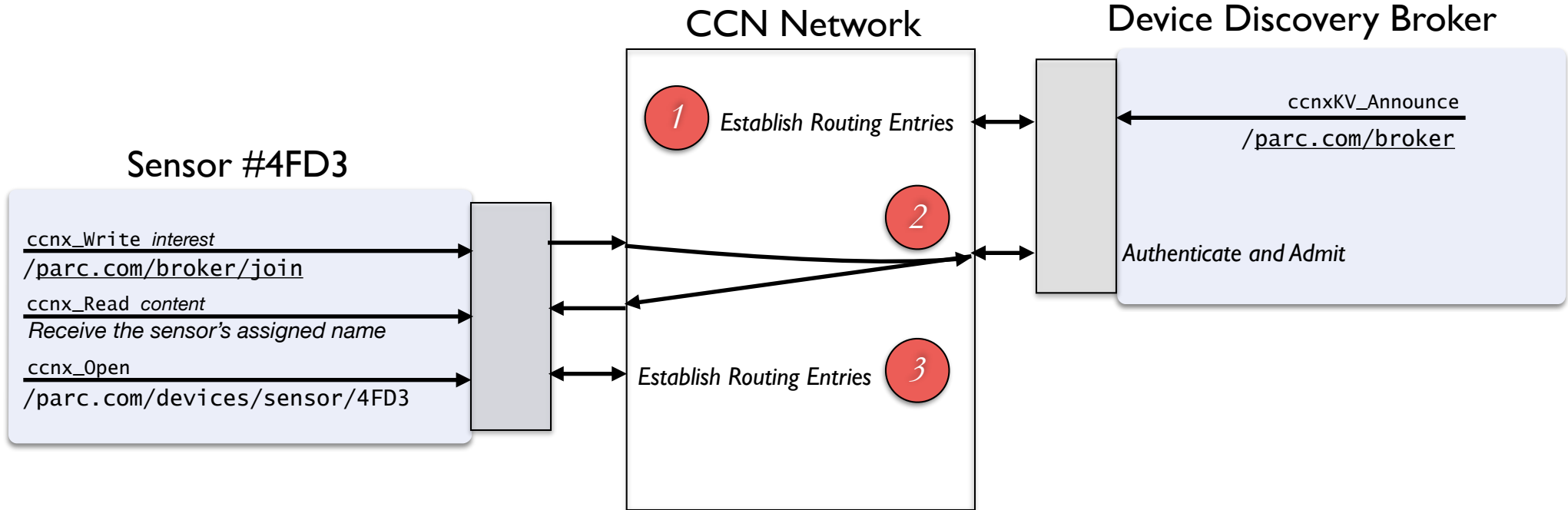
Simple Service Discovery

Client Interaction via the CCNx Key Value API



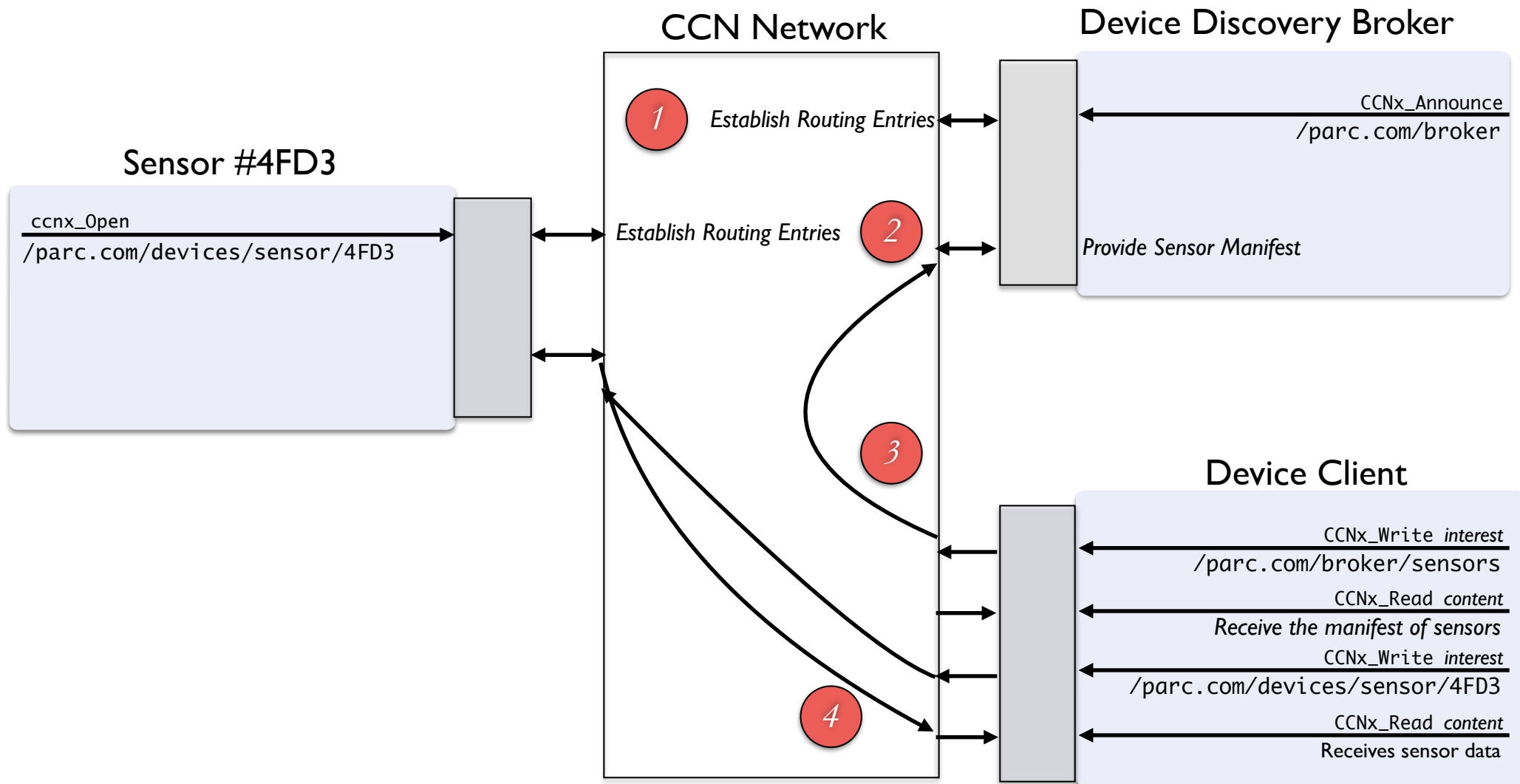
Simple Device Discovery

CCNx Key Value and CCNx Socket API interoperation



Simple Device Discovery

CCNx Key Value and CCNx Socket API



Simple Device Discovery

CCNx Key Value and CCNx Socket API

Sensor #4FD3

CCNx_Write interest
/parc.com/devices/join

CCNx_Read content
Receives the sensor's assigned name

CCNx_Listen
/parc.com/devices/sensor/4FD3

CCNx_Read interest
Read interest in current state

CCNx_Write content
/parc.com/devices/sensor/4FD3

CCN Network

Establish Routing Entries

Establish Routing Entries

Device Discovery Broker

CCNx_Announce
/parc.com/devices

Authenticate and Admit

Reply With A Manifest of sensors

Device Client

CCNx_Write interest
/parc.com/devices/sensor/

CCNx_Read content
Receive the manifest of sensors

CCNx_Write interest
/parc.com/devices/sensor/4FD3

CCNx_Read content
Receives data from the sensor