

Interface A

Usage Scenarios

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Purpose and Output

- **Purpose:** Usage Scenarios represent the ISMI member company consensus of production fab use models. They establish expected behavior sequences and provide guidance for suppliers during implementation of the functions and requirements in the standards. Usage Scenarios also bound the space of interest for conformance and validation testing.

Scenario Development Approach

- EDA Interface management, client and equipment level communication
- Three level communication description used
 - Level 0: Concept Representation
 - Simple description using arrows between client and equipment
 - Level 1: Message Transaction
 - Description of the actual messages, service call, input/output attributes and sequences for Level 0 concept representation
 - Level 2: Message and Command breakdown (Not Included)
 - Messages with specific content
- Content
 - Functional sequences and unit scenarios per standard
 - General Usage Scenarios
 - Exception Scenarios (next publication phase)

Classification of Usage Scenarios Document

- **Classification**

- **“Fundamental Sequences”**

- Small reusable functional cases that represent functions each standard defines
 - Have an **Exxx-SEQ-XX** identifier number
 - A given **Exxx-SEQ-XX** is given a **.X** number for different combinations of message content

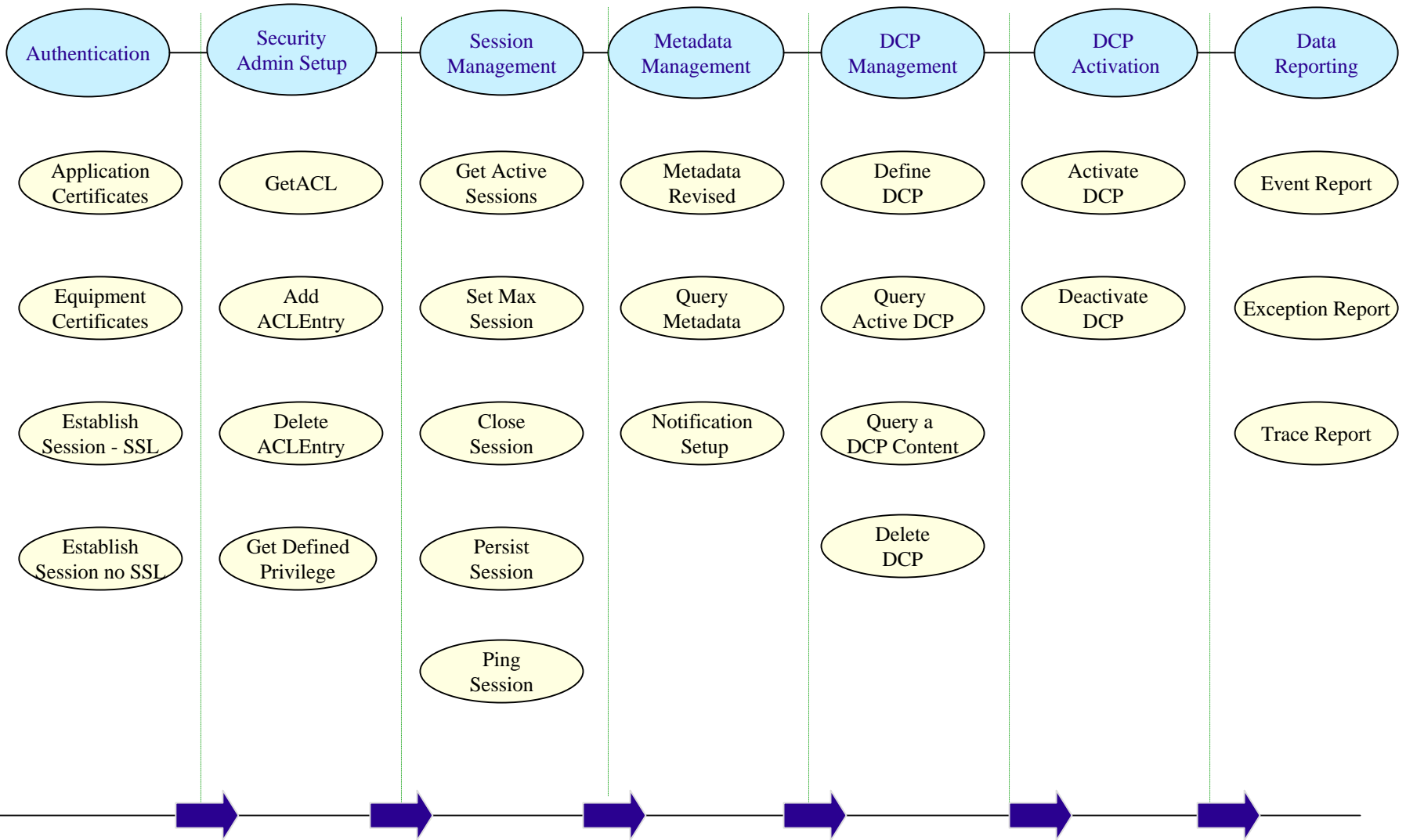
- **“Unit Scenarios”**

- Composed of a combination of fundamental sequences from single standard
 - Have an **Exxx-SCN-XX** identifier number

- **“Integrated Scenarios”**

- Composed of a combination of fundamental sequences from multiple standards
 - Have an **SCN-XX** identifier number only since uses elements from multiple standards

EDA Base Component Overview



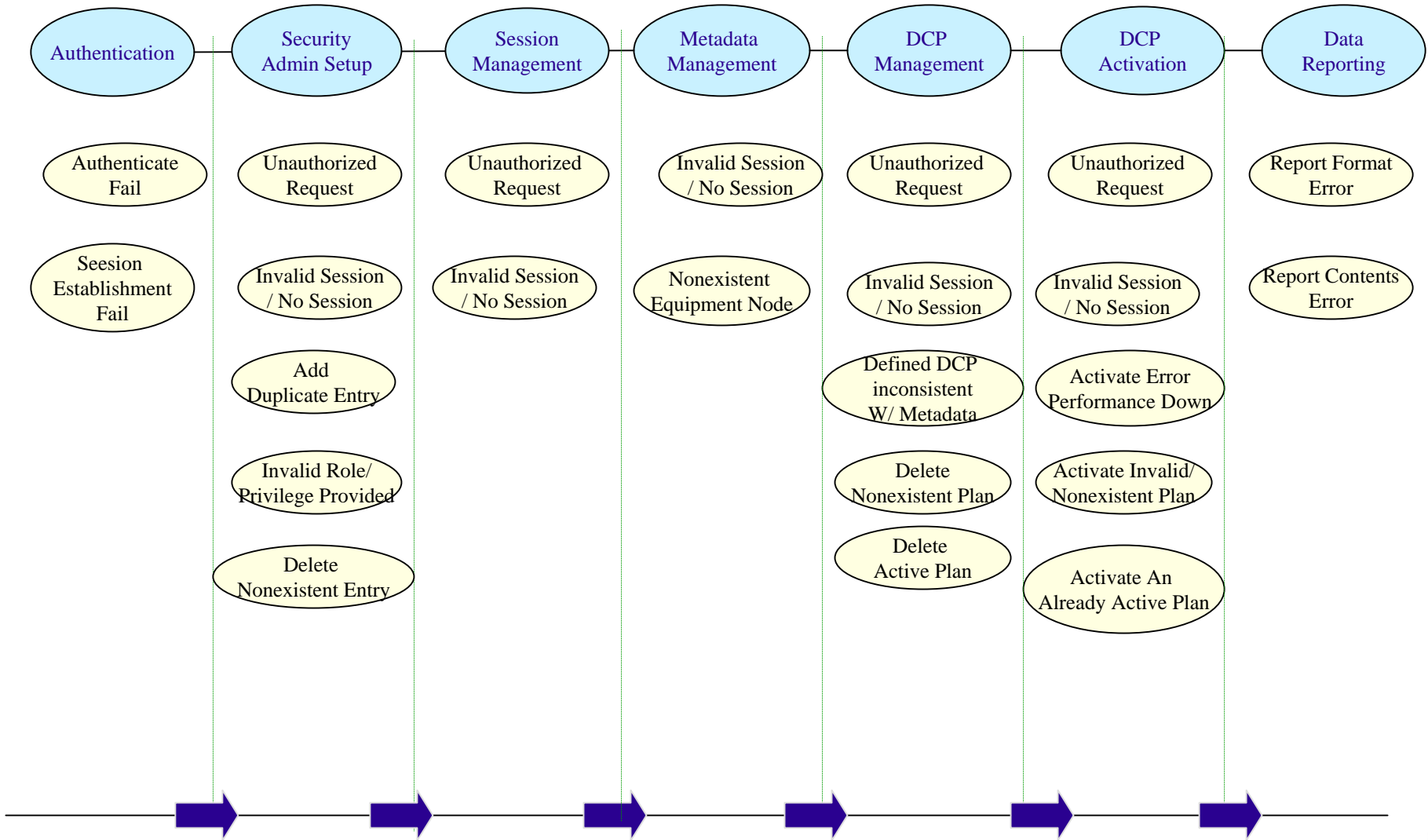
Normal Use

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MANUFACTURING INITIATIVE

EDA Base Component Overview



Exception Cases

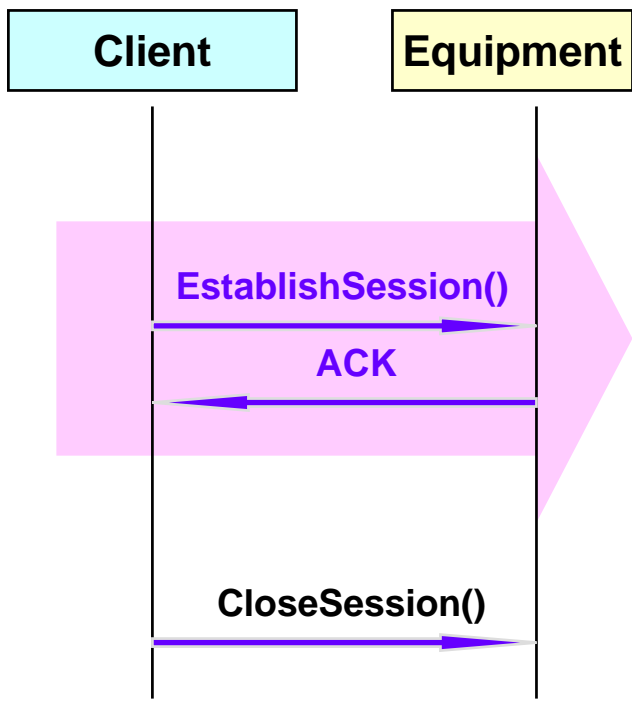
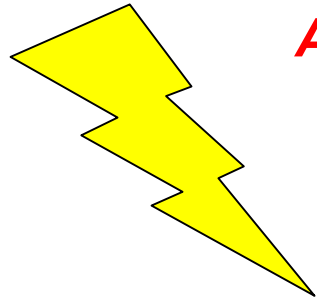
Fundamental Sequences and Unit Scenarios

- **Authentication and Authorization Standard (E132)**
 - Credential Set Up for Equipment and Applications
 - Admin or Client Authentication with and without SSL
 - ACL Entry Management Services
 - Administrative Session Management Services
 - Session Operation Services
 - Equipment Notification Services
- **Equipment Self Description Standard (E125)**
 - Metadata Query Services
 - Metadata Management Services
- **Data Collection Management Standard (E134)**
 - DCP Management Services
 - DCP Query Services
 - DCP Performance Warning Services

Admin or Client Authentication

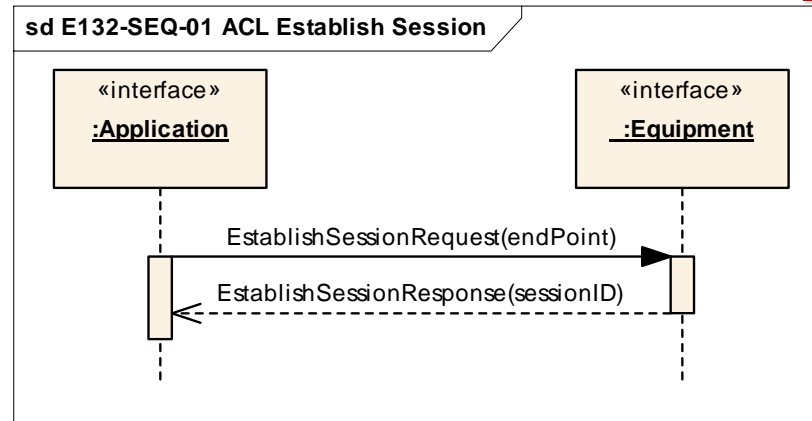


Admin or Client Authentication



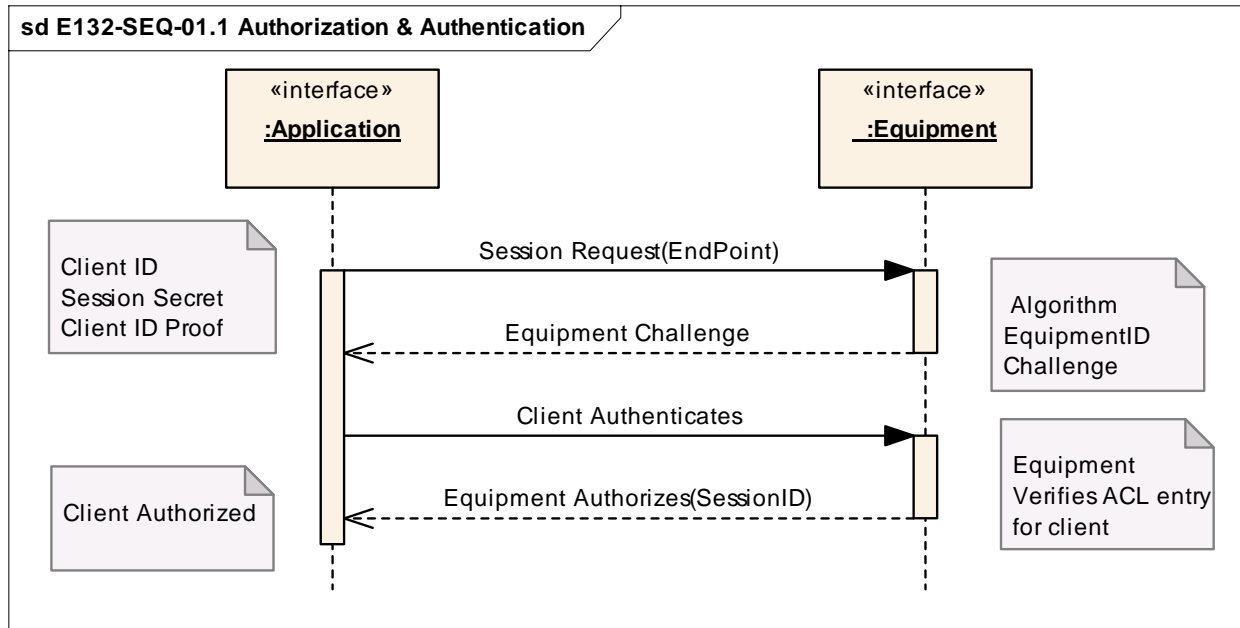
•EstablishSession()

E132-SEQ-01 Establish Session Request Service



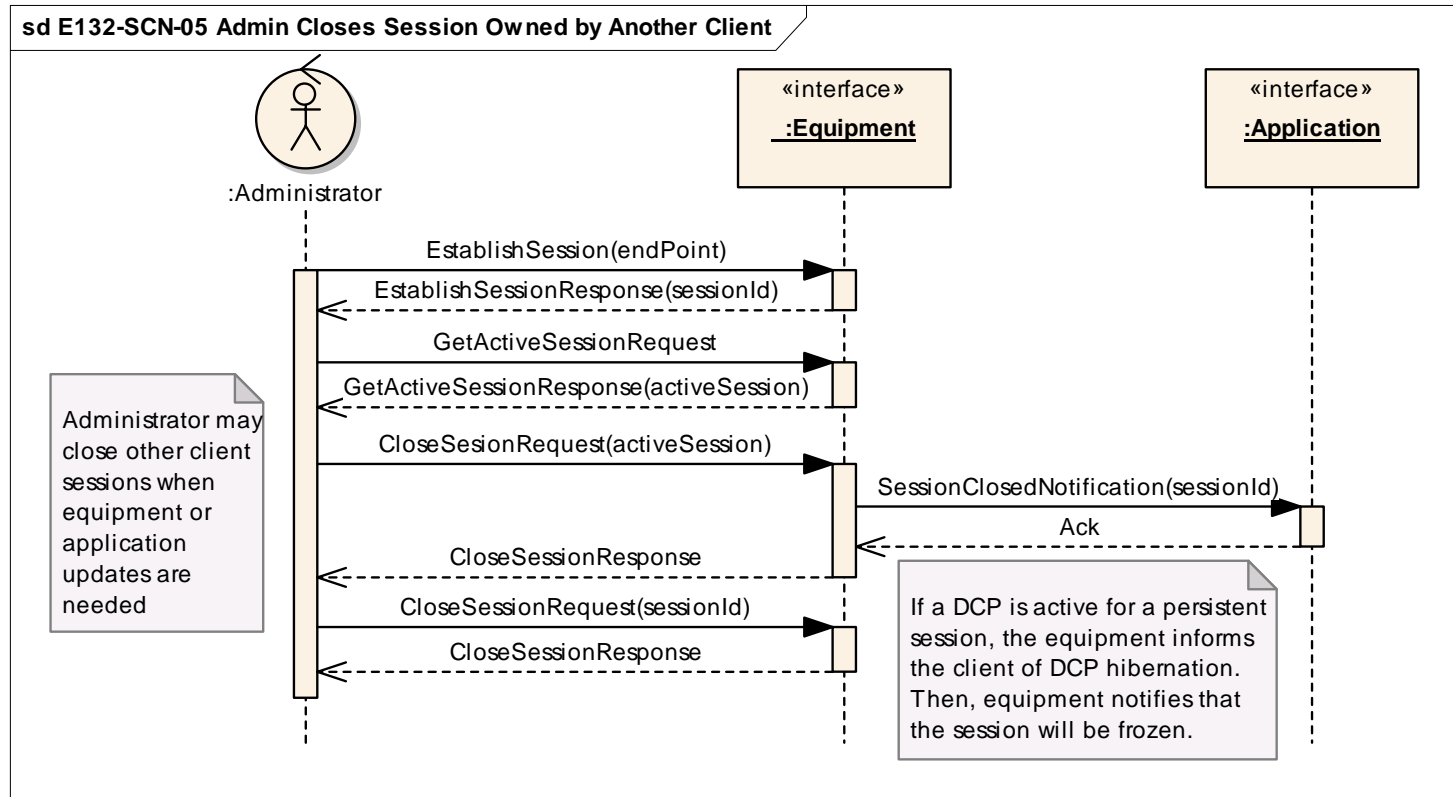
- This service is used by both Admin and non-Admin Clients to connect with the equipment
- **Normal Case**
 - E132-SEQ-01.1 Application has a valid certificate and ACL entry (SSL enabled)
 - E132-SEQ-01.2 Application has an ACL entry (SSL disabled) special case where the equipment skips or ignores the low level Authentication
 - Authorization still applies (ACL Entry is required!)
- **Exception Cases**
 - E132-SEQ-01.3 Application does not have a certificate at all (w SSL enabled)
 - E132-SEQ-01.4 Application with a certificate that is not trusted
 - E132-SEQ-01.5 No ACL entry
- **Scenario**
 - E132-SCN-01 SSL Configuration Change Scenario

E132-SEQ-01.1 Admin or Client Authentication Detail (SSL Enabled)



- The Client will be granted access to a session automatically if
 - A subject in the ACL matches the ID in the FROM field from the request or
 - A subject in the ACL is equal to anyPrincipal that has assigned privileges

E132-SCN-05 Administrator Closes Session owned by Another User

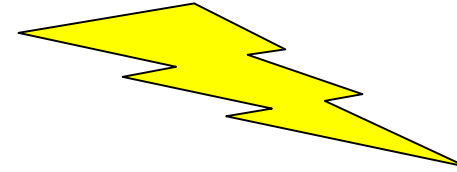
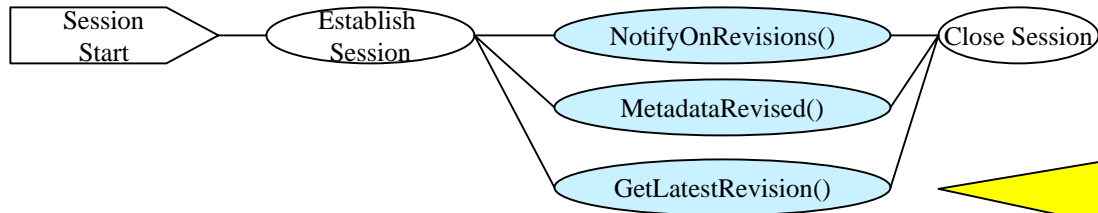


SEMI E125 Equipment Self Description Standard



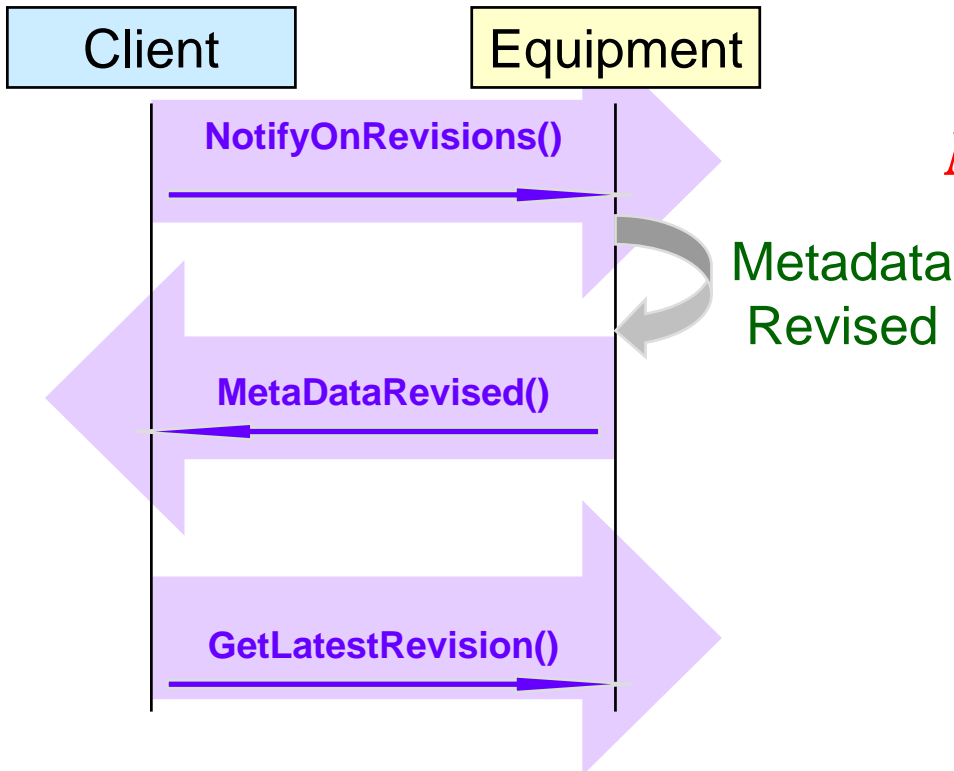
- **Two groups of services have been defined:**
 - **Metadata Query Services**
 - **Metadata Management Service**

Metadata Management Services



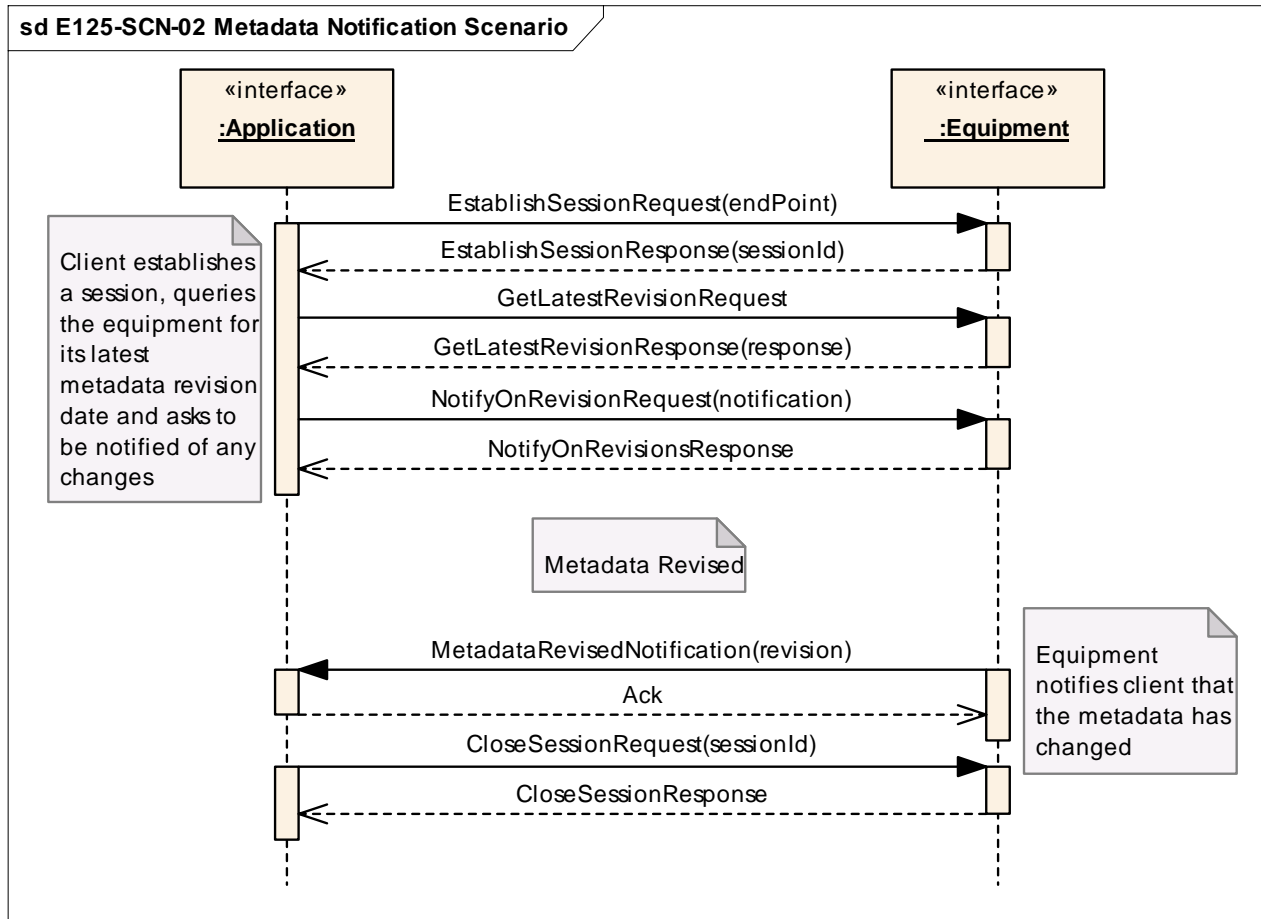
Metadata Notification Services

- MetadataRevised()
- NotifyOnRevisions()
- SetNotifyOnRevisions()
- GetLatestRevision()



E125-SCN-02

Metadata Change Notification Scenario

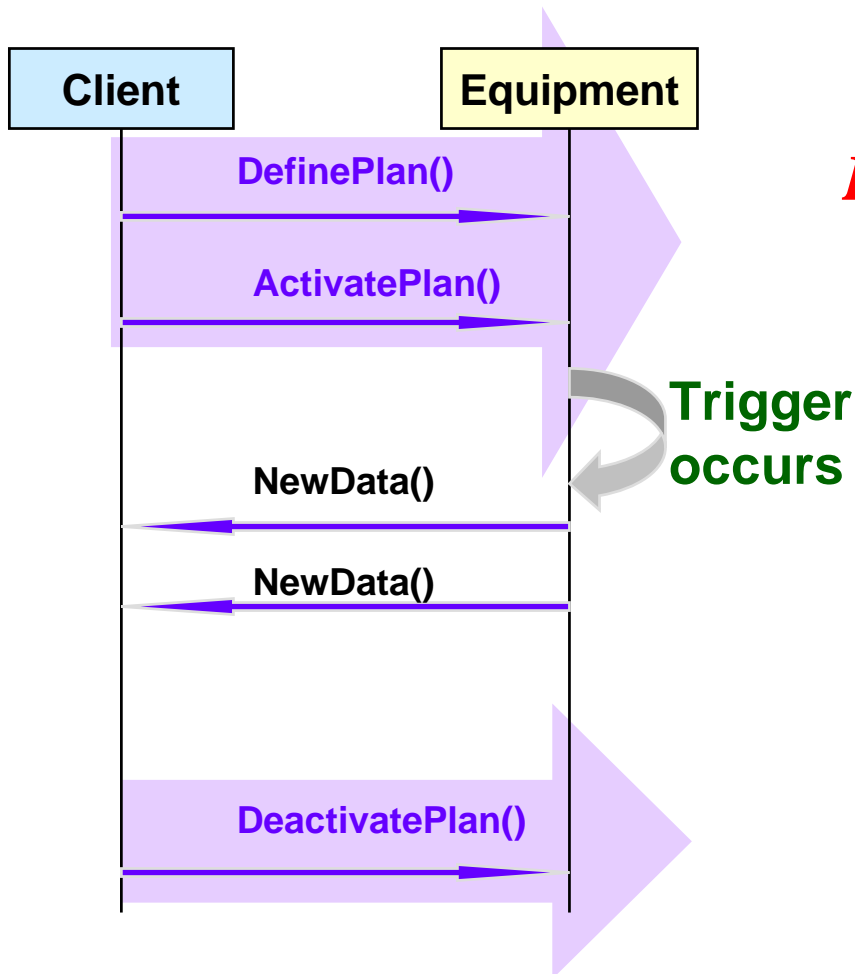


SEMI E134 Data Collection Management Standard



- **Defined Groups of Services Are:**
 - **DCP Management Services**
 - **DCP Query Services**
 - **DCP Performance Warning Services**

DCP Management Services



Data Collection Plan Management

- DefinePlan()
 - Event, Exception, Trace
- ActivatePlan()
- DeactivatePlan()
- DeletePlan()
- GetActivePlanIDs()
- GetPlanDefinition()
- GetDefinedPlanIDs()

DCP Management Services

- E134-SEQ-03 DeactivatePlan()

- E134-SEQ-04 DeletePlan()

- **Normal Case**

- E134-SEQ-03.1 DeactivatePlan() Terminate set False
- E134-SEQ-03.6 DeactivatePlan() Terminate set to True

- **Exception Cases**

- E134-SEQ-03.2 Invalid SessionID
- E134-SEQ-03.3 No privilege
- E134-SEQ-03.4 Non existent PlanID
- E134-SEQ-03.5 PlanId Not activated

- **Scenario**

- E134-SCN-02 DCP Deactivation Scenario (add text to cover Terminate attribute)
- E134-SCN-03 Terminate set to true everyone stops getting data

- **Normal Case**

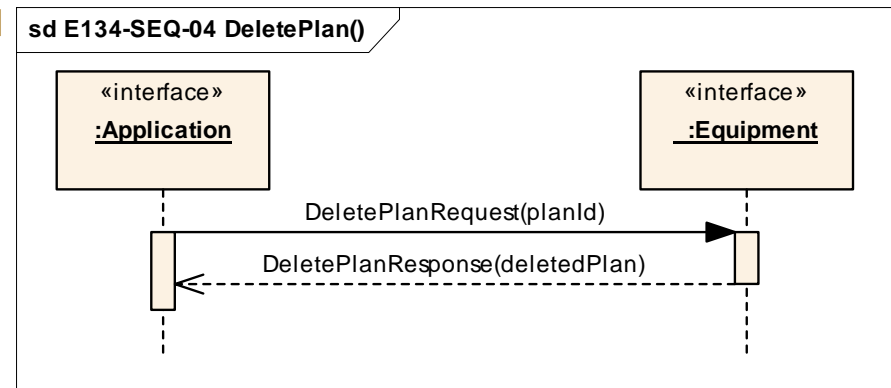
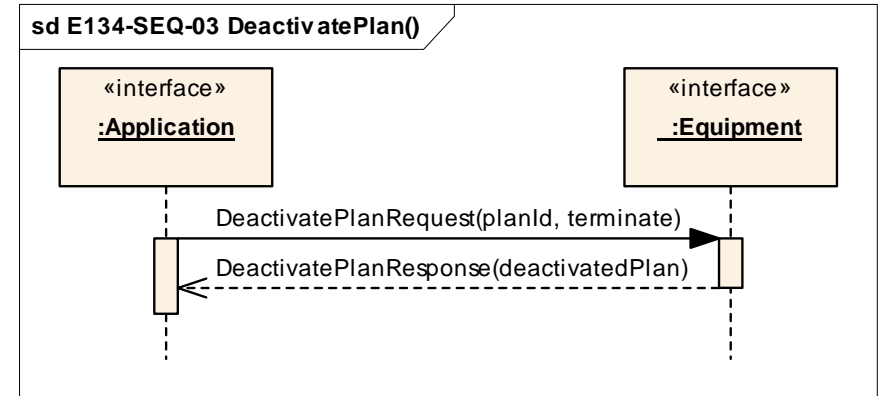
- E134-SEQ-04.1 DeletePlan()

- **Exception Cases**

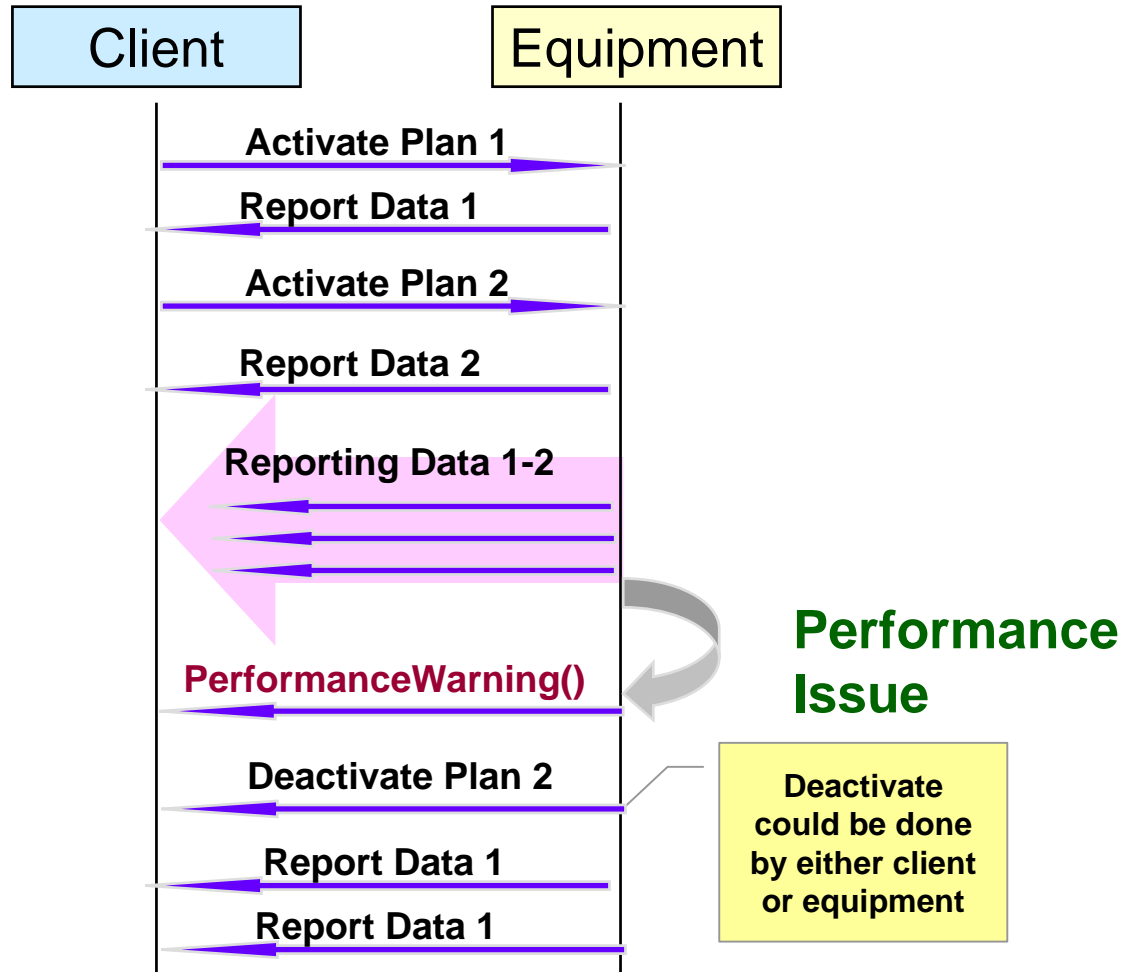
- E134-SEQ-04.2 Invalid SessionID
- E134-SEQ-04.3 No privilege
- E134-SEQ-04.4 Non existent PlanID

- **Scenario**

- E134-SCN-04 DCP deletion and Editing

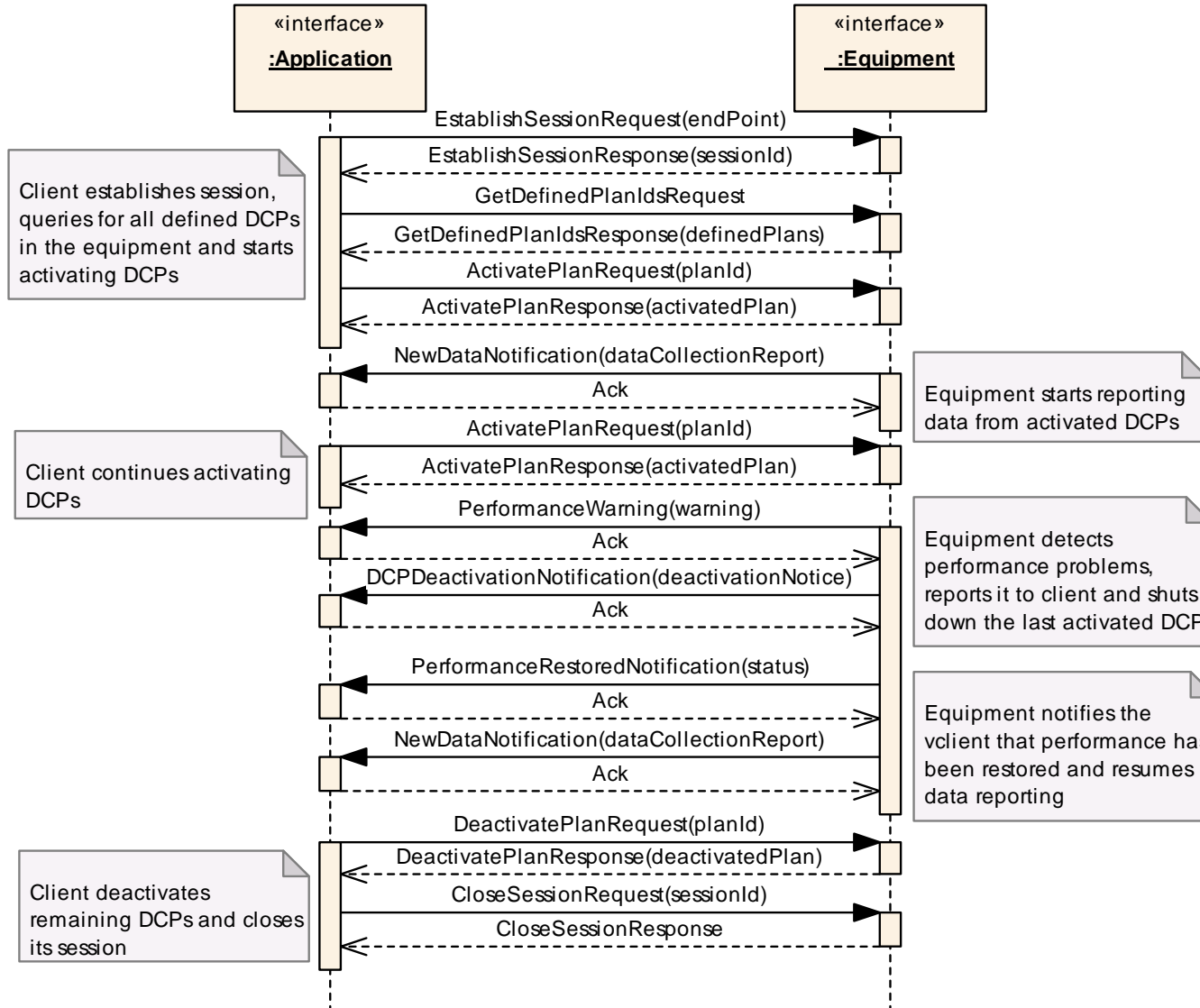


DCP Recovery from Performance Warning

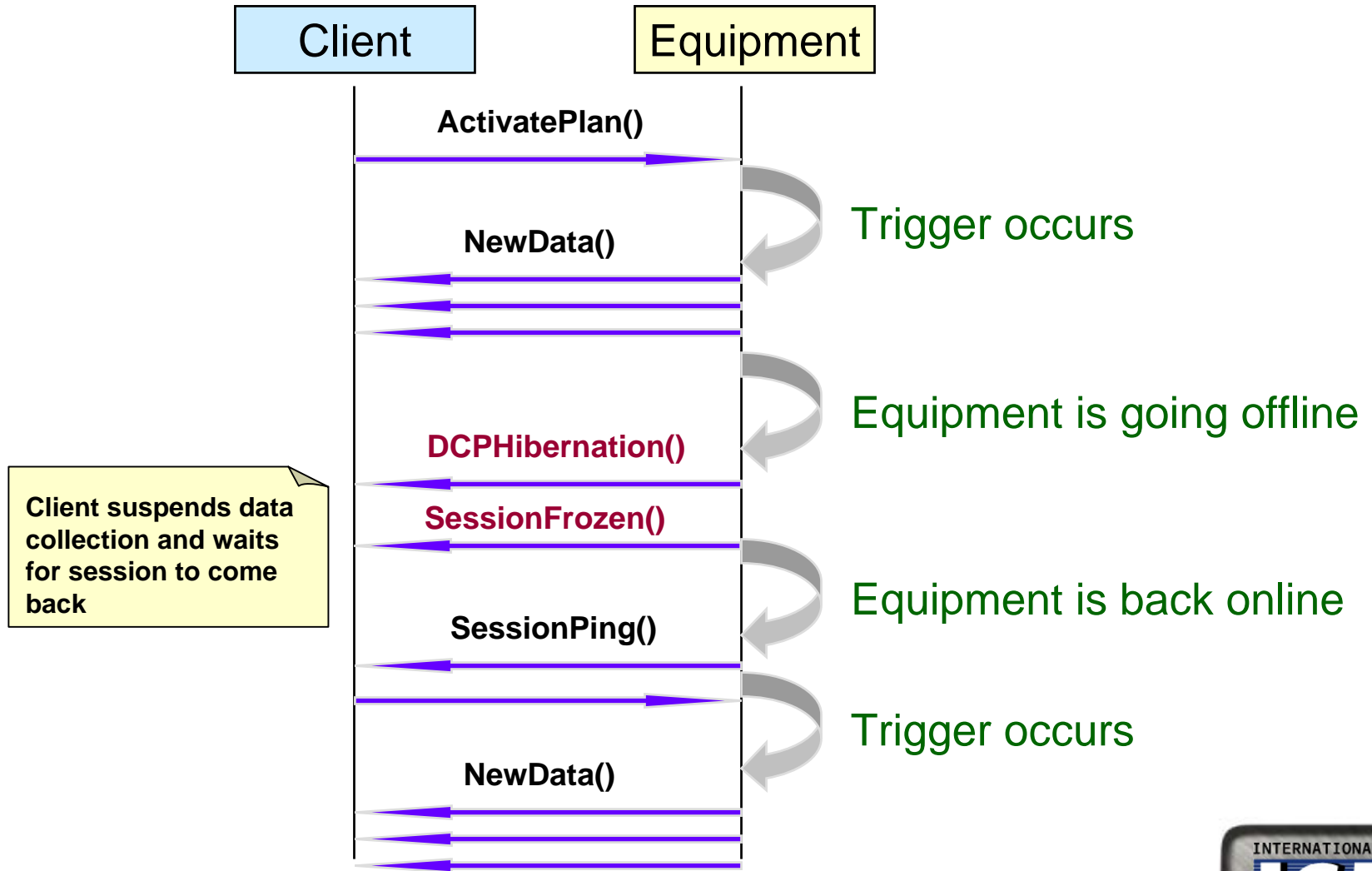


E134-SCN-04 Performance Warning with Performance Restored

sd E1324-SCN-04 Performance Warning with Performance Restored



Equipment Restarts DCP with Persistence



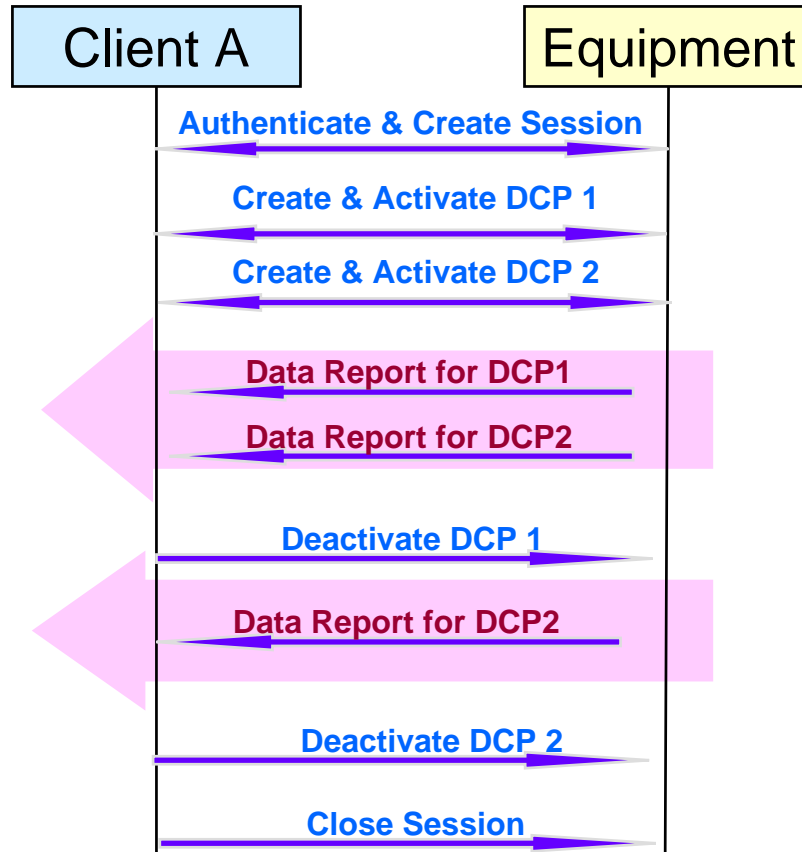
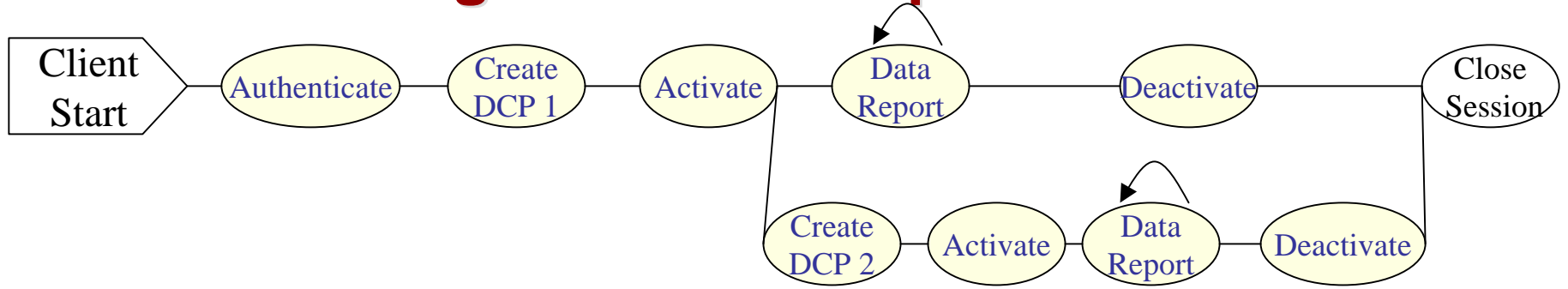
General Usage Scenarios



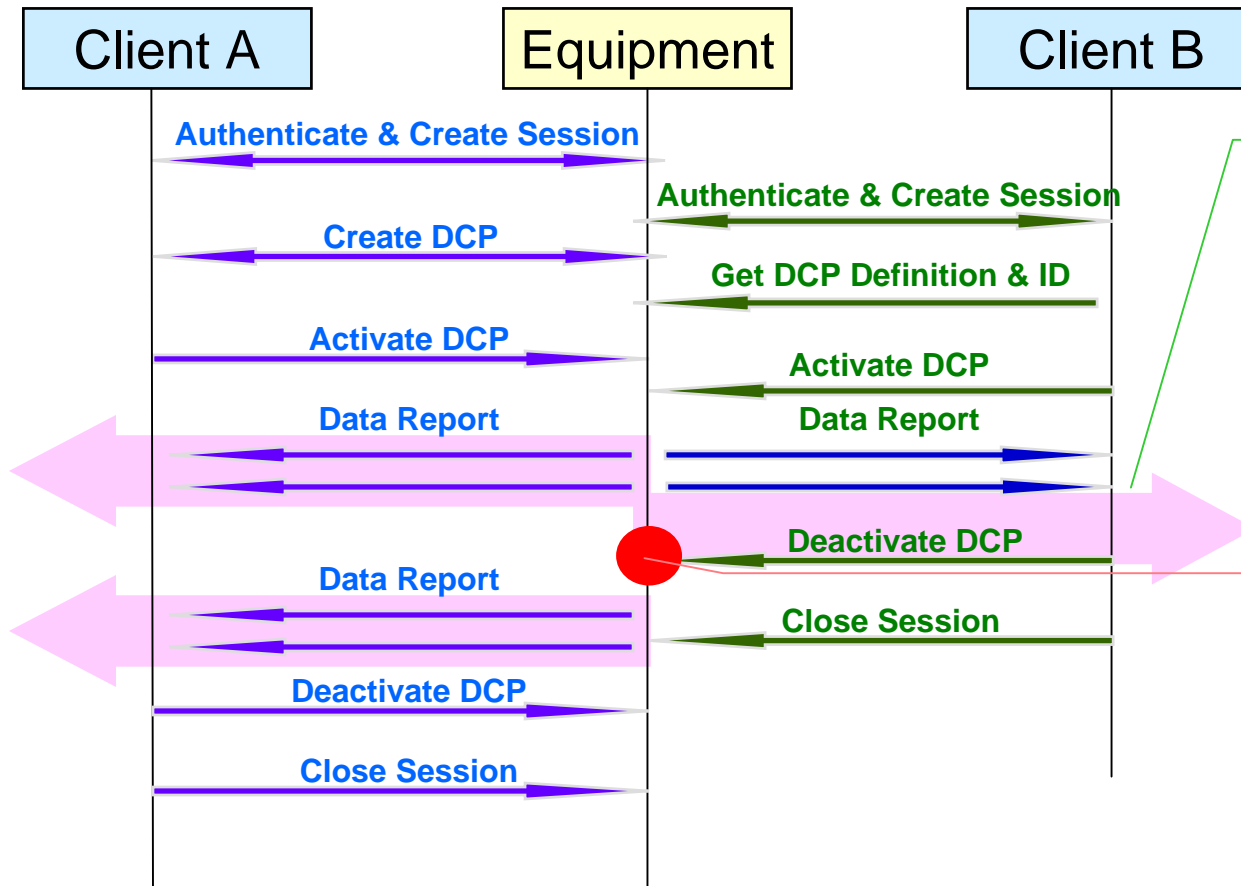
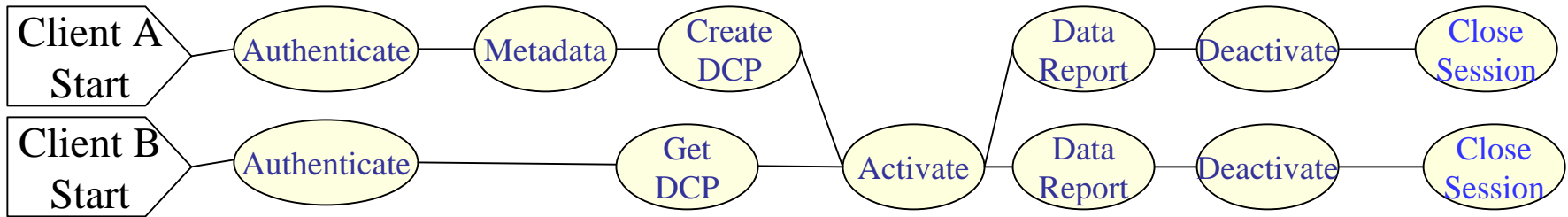
- **Single and Multiple Client & Server Combination**
 - **SCN-01 Basic EDA Usage Scenario**
 - **SCN-02 Single Client Multiple DCPs Activate**
 - **SCN-03 Multiple Clients Activating Same DCP**
 - **SCN-04 Multiple Clients Multiple DCP**
 - **SCN-05 Deactivate with More than One Client Receiving Data**

SCN-02

Single Client Multiple DCP Activate



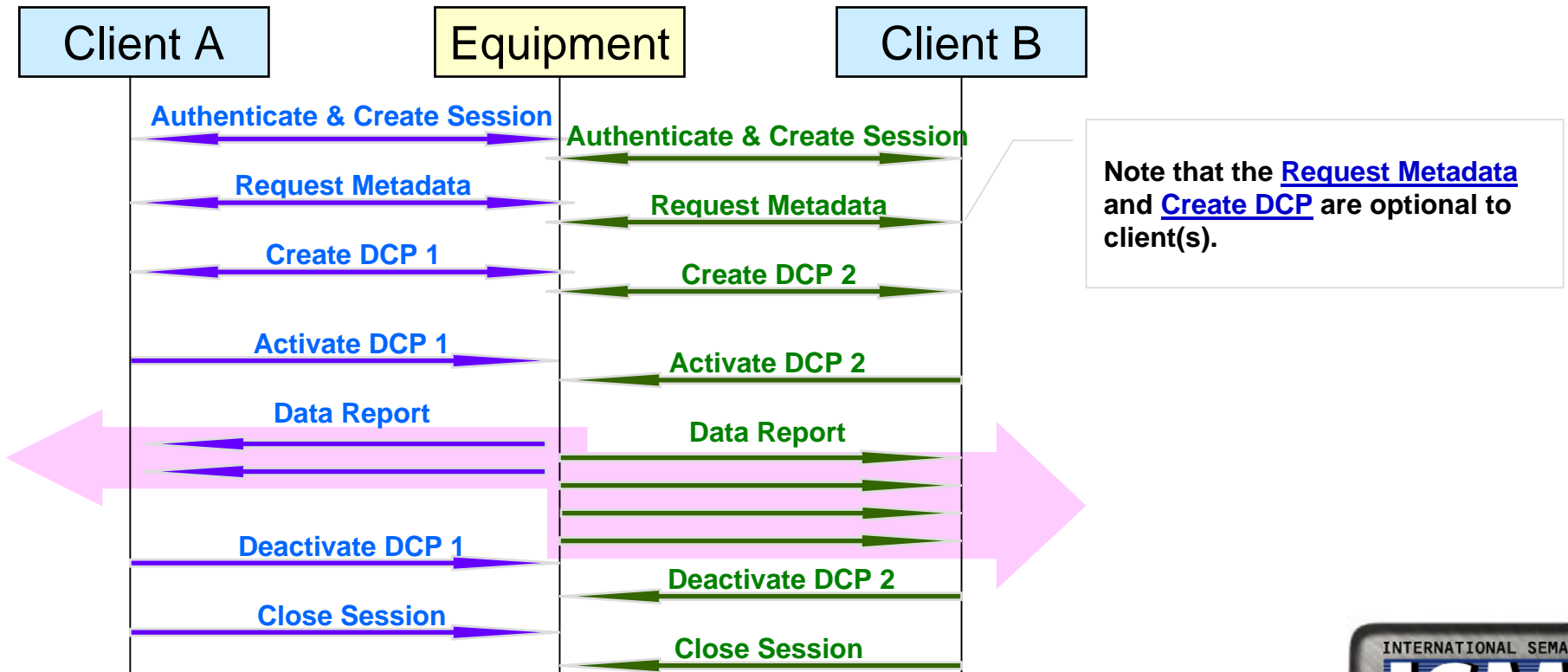
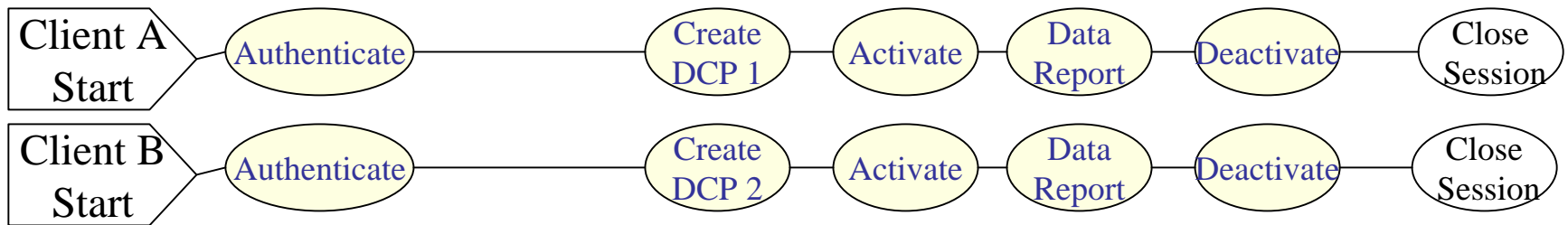
SCN-03 Multiple Client Single DCP



Only one data report sent out from EQP to many clients at the same time.

The DCP can not be deactivated until the last client sent deactivate DCP message.

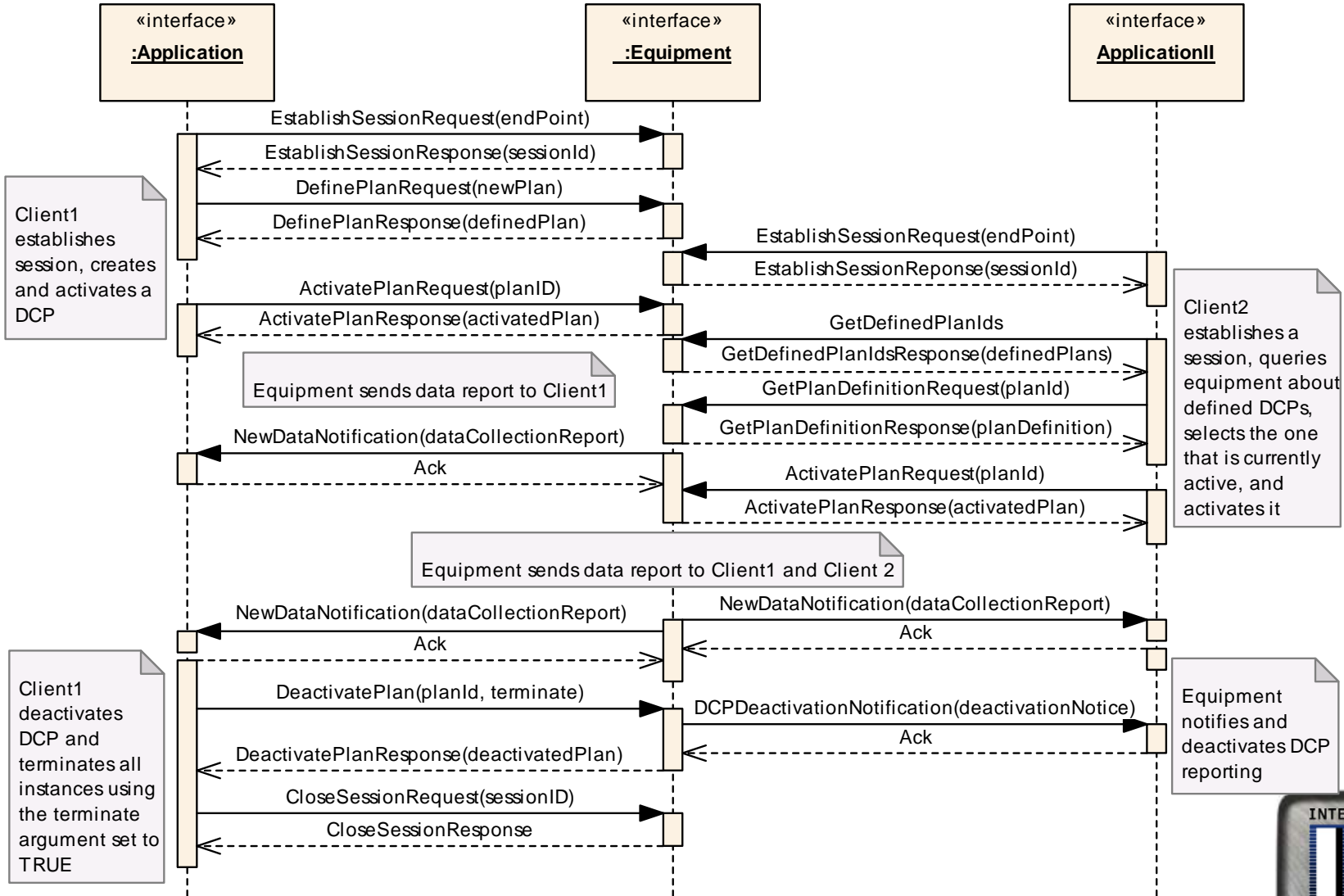
SCN-04 Multiple Client Multiple DCP



SCN-05

DCP Deactivation with more than one Client Receiving Data (Terminate=True)

sd SCN-05 DCP Deactivation with More than One Client Receiving Data



Next Steps

- **Publication and availability of EDA Usage Scenarios**
 - Tech Transfer Document at SEMATECH – ISMI public web site by 10/2004
- **Exception Handling Cases**
 - Continue development of additional cases and describe in more detail the expected behavior of the interface via exception handling cases
 - Completion Date
 - 1Q2005
- **Contact**

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