Data Communications Company

TEST ASSURANCE

DCC Industry Day

02 February 2016

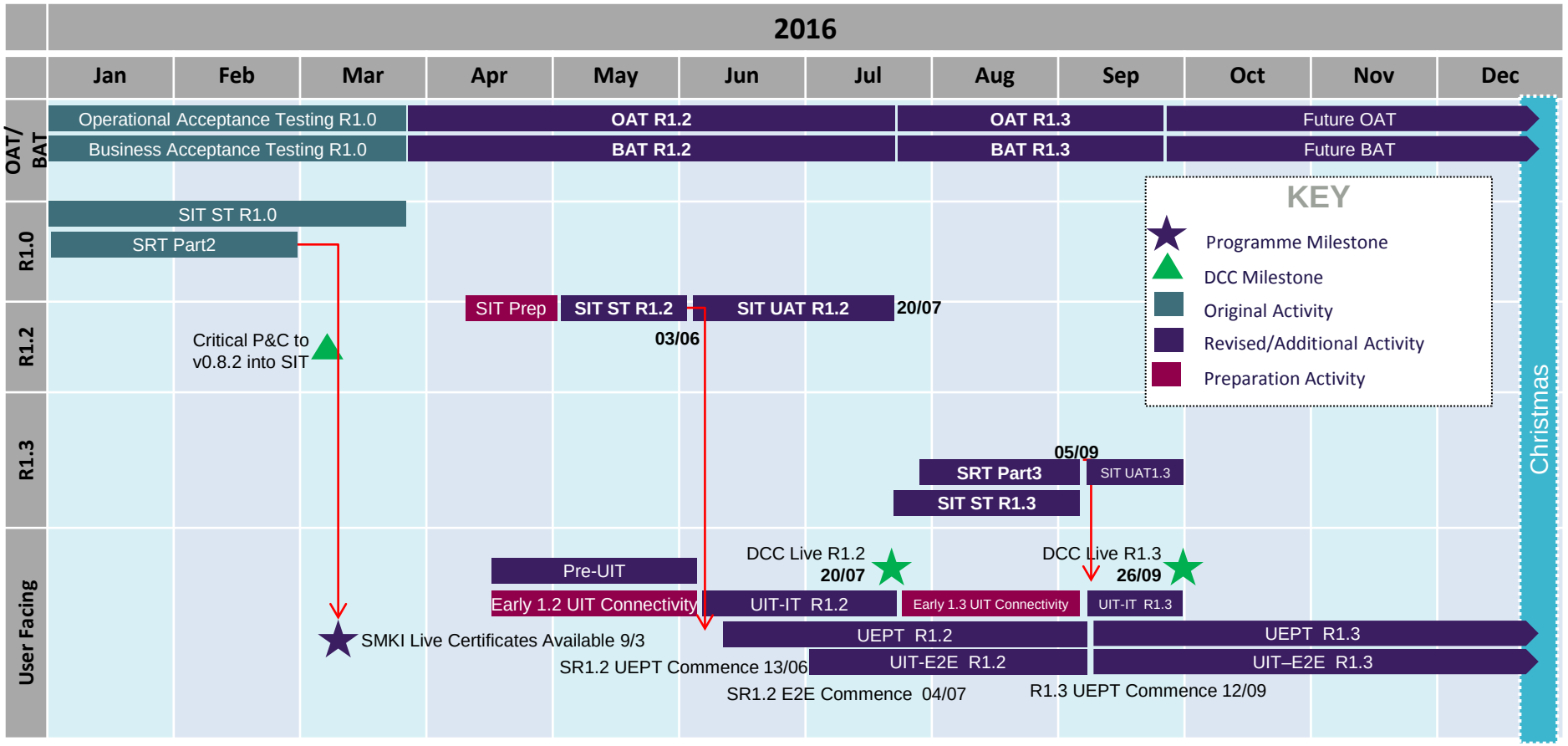
Phillip Twiddy & Rupal Patel

AGENDA

- Overview of Testing Stages
- Testing with Registration Data Providers
- User-facing Testing
  - Pre-UIT and Early Connectivity
  - SMKI & Repository Entry Process Tests
  - User Entry Process Tests
  - End-to-End Testing
    - User Labs
    - Lead Times
    - GIT For Industry

OVERVIEW OF TEST STAGES

PLAN ON A PAGE



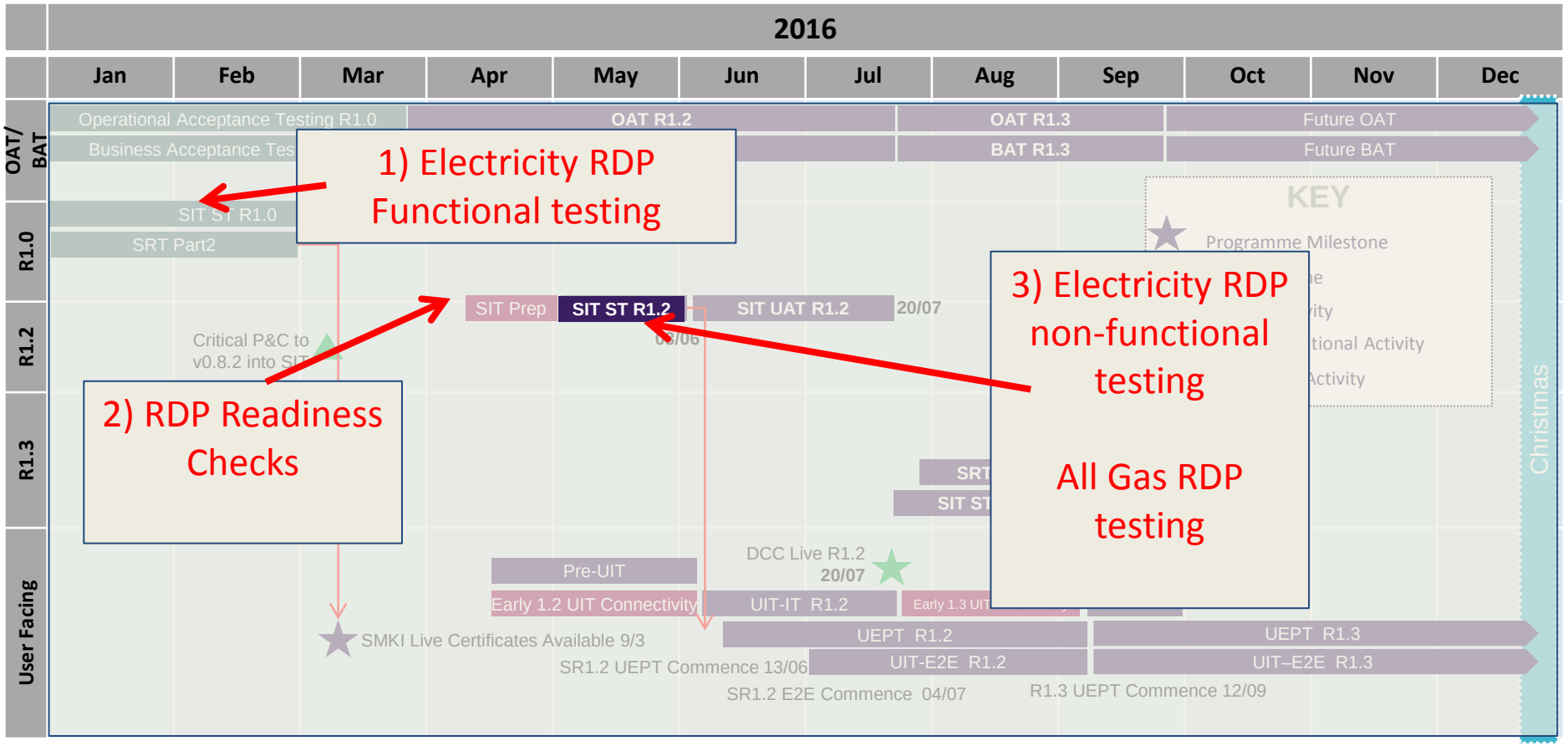
Ref: Integrated Plan on a Page Release 1.2 and Release 1.3 v1.3a – For Industry

TESTING WITH REGISTRATION DATA PROVIDERS (RDPs)

TESTING WITH RDPs

- Registration Data Provider (RDP) provides data (using SMKI signed files) in respect of Suppliers that are responsible for each metering system
- St Clements Services Ltd provides the registration system for electricity
  - It will conduct functional testing to assure the registration system on behalf of all electricity RDPs
- Each electricity RDP will conduct non-functional testing including provision of full volume files and refresh files, this will be undertaken using the DCC Gateway Connection
- Xoserve will conduct both functional and non-functional testing on behalf of Gas Transporters for the provision of gas registration data

PLAN ON A PAGE: RDPs



Ref: Integrated Plan on a Page Release 1.2 and Release1.3 v1.3a – For Industry

USER-FACING TESTING

FACILITATING TESTING
(INDUSTRY TEST SERVICES TEAM)

- Supporting Parties through testing
- Helping Parties understand their obligations and processes for testing
- Assuring that Parties meet the required objects of each testing phase
- Issuing Approval to Proceed Certificates
- Issuing Test Completion Certificates

FACILITATING TESTING
(EARLY UIT CONNECTIVITY TESTING)

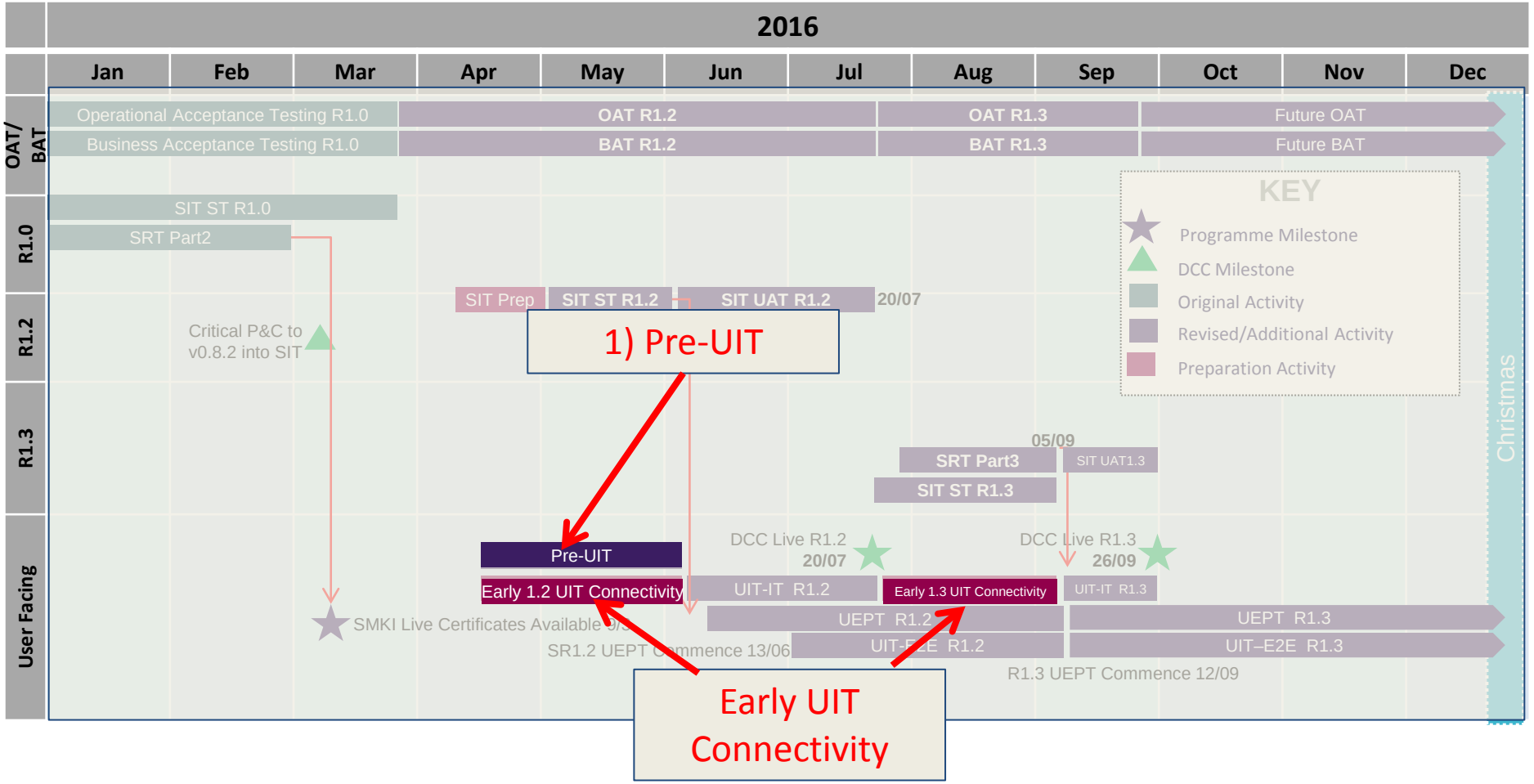
- Details being developed – key purposes
  - Prove DCC Gateway Connection
  - SMKI certificates for UIT correct
  - DCCKI certificates for UIT correct
  - Establish TLS session to UIT environment
    - UIT used for Interface Testing, User Entry Process Tests & End-to-End testing

FACILITATING TESTING
(PRE-USER INTEGRATION TESTING)

- Principles:
  - Core message processing tested early
  - Limited scope of testing
  - CSPs & Metering Devices replaced by CSP Simulator
- Pre-requisites:
  - SMKI & DCCKI Test Certificates
  - Meet Security Requirements
  - User's environment is ready
- Details being developed – key purposes
  - Can access Pre-UIT via DCC Gateway Connection
  - Can apply SMKI correctly
  - Can construct Service Requests correctly
  - Can Parse responses correctly

PLAN ON A PAGE

(PRE-UIT & EARLY UIT CONNECTIVITY TESTING)



Ref: Integrated Plan on a Page Release 1.2 and Release1.3 v1.3a – For Industry

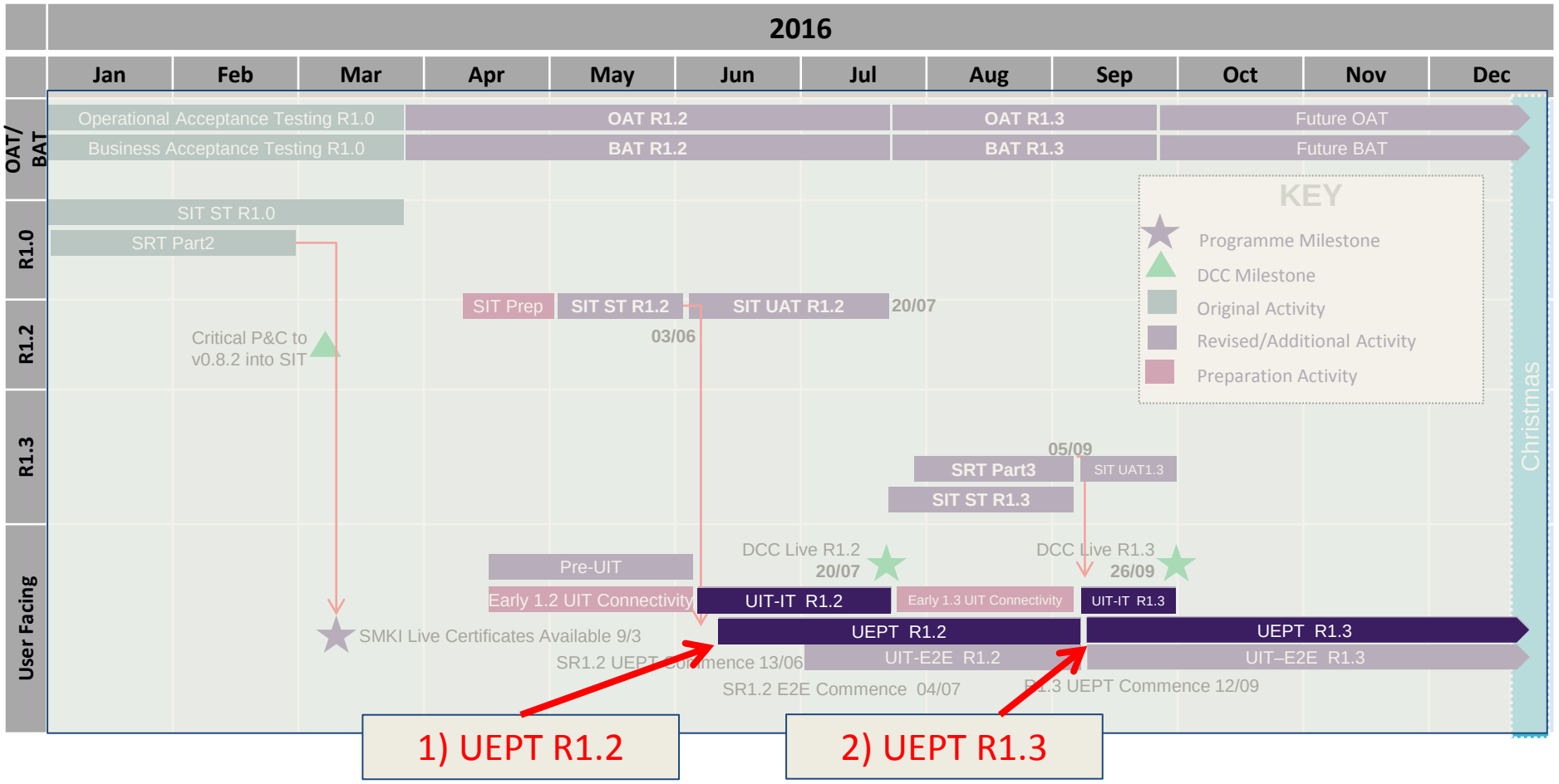
SMKI & REPOSITORY ENTRY PROCESS TESTS (SREPT)

- 6 Parties have successfully completed SREPT including Suppliers, Distribution Network Operators (DNOs) and Shared Service Providers
- Currently only testing via DCC Gateway Connection
  - SREPT for SMKI Portal Via the Internet will be available from 19 February
- Several Parties are progressing through the process
- Network Operators are expected to complete SREPT to allow certificates to be placed on meters
- Lessons learnt will be available in SharePoint
- Contact Industry Test Services Team if you would like to commence SREPT

USER ENTRY PROCESS TESTS (UEPT)

- UEPT undertaken for Release 1.2 and Release 1.3
  - no longer undertaken against Release 1.0 in Feb 2015
  - UEPT commences at the start of Release 1.2 Interface Testing stage
  - UEPT also conducted (in respect of relevant Service Requests) against Release 1.3
- Large Suppliers to be ready for start of R1.2 and R1.3
- Other Testing Participants can choose when to conduct UEPT
- DCC will work with all Testing Participants to limit impact of the phased implementation
- Release 1.2 vs Release 1.3;
  - R1.2 provides functionality to support the operation of credit meters
  - R1.3 provides the operation of Pre-payment meters

PLAN ON A PAGE (UEPT)



Ref: Integrated Plan on a Page Release 1.2 and Release1.3 v1.3a – For Industry

END-TO-END TESTING

OVERVIEW – END-TO-END TESTING

Why participate in End-to-End (Device & User System) Testing?

- It allows Users to de-risk the end-to-end processes that could impact their ability to support customers
- It allows the market to confirm that devices work with the DCC and meet licence obligations

What does it enable?

- It allows Users to test their chosen devices
- It allows manufacturers / MAPs / test houses to test devices with the DCC
- It allows Users to test their own systems

Where

- CSP Test Lab and Remote Test Lab

Who can do End-to-End (Device & User System) Testing?

- Future Users
- SEC Parties
  - In User Roles that a SEC Party would not fulfil in live

For more information

- End-to-end Testing Approach Document (E2ETAD V3.0 – to be updated)
- Guide for Testing Participants (Guide V1.2 – to be updated)

END-TO-END TESTING

- End-to-End testing available from Release 1.2 onwards
- Users can only participate in the End-to-End Testing Stage in a specific user role when the relevant UEPT passed
- Working with testing colleagues from industry to:
  - Understand their requirements for E2E (Device) testing
  - Facilitate multi-party testing
    - e.g. Change of Supplier
  - Address concerns regarding environment availability
    - Manner in which outages/interruptions are managed will be set out in the relevant testing approach documents

TESTING IN YOUR OWN LAB

- Remote test service required
  - Can choose location of set-up
  - Restricted only by availability of testing service

- Remote Test Services available from the start of the End to End Testing Stage

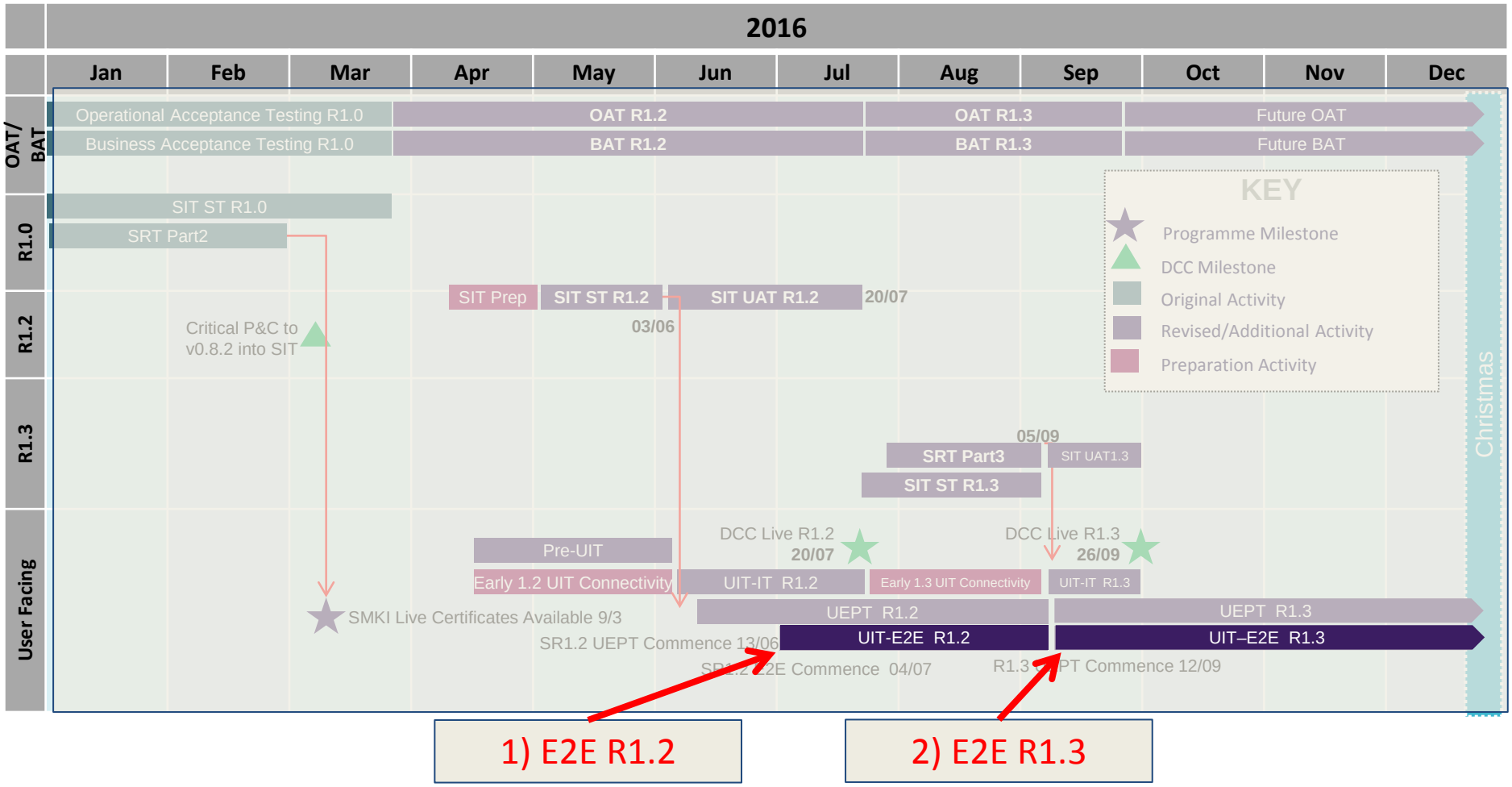
- Further details available in the E2E Testing Approach document

LEAD TIMES

- Remote Test Lab Services from Communication Service Providers must be ordered from DCC service desk
  - Lead times:
    - Communication Service Provider (North) = 6 months
    - Communication Service Provider (South and Central) = 5 months

- Prototype/Test Communications Hubs from CSPs must be ordered from DCC service desk
  - Lead times:
    - Communication Service Provider (North) = 18 weeks
    - Communication Service Provider (South and Central) = 4 months

PLAN ON A PAGE (E2E TESTING)



Ref: Integrated Plan on a Page Release 1.2 and Release1.3 v1.3a – For Industry

GFI

CURRENT STATUS & IMMEDIATE PLANS

- History: GFI is the son of ATG
  - Developed to test GBCS
  - Expanded to replace meter emulator with real meters
  - Made available to all
- Current Status
  - GBCS 0.8.1
  - Meter-Centric Use Cases
  - Recovery using Apex Contingency Key

- Immediate Plans
- GBCS 0.8.2 R1.2
- GBCS 0.8.2 R1.3
- Test Reference Data Set
- Test Events

TEST EVENTS

Test Event	Start Date	End Date	Days
9	12/01/2016	15/01/2016	4
10	16/02/2016	19/02/2016	4
11	15/03/2016	18/03/2016	4
12	12/04/2016	15/04/2016	4
13	17/05/2016	20/05/2016	4
14	14/06/2016	17/06/2016	4
15	12/07/2016	15/07/2016	4
16	16/08/2016	19/08/2016	4

Scheduling Releases & Test Events

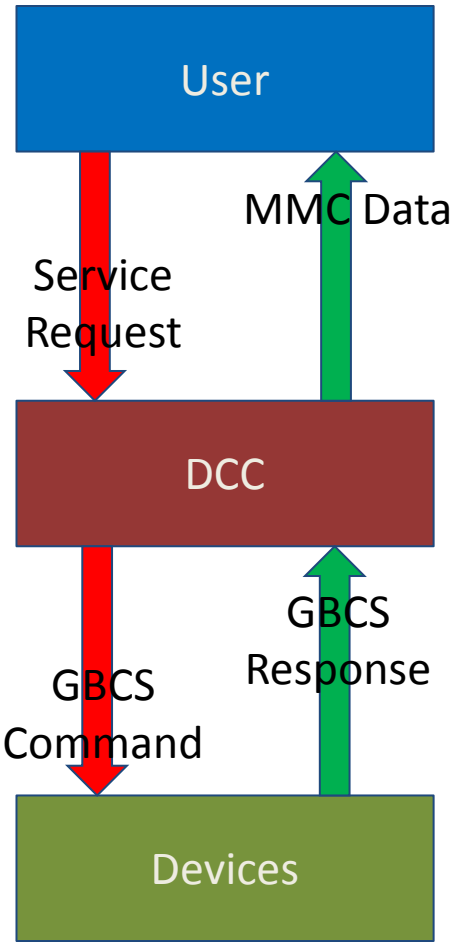
- Previously:
  - release GFI @ test event, prove, fix, publish
- Moving to:
  - release GFI before test event, test, test event, fix, re-publish

What Devices Should I Bring?

- From February: GBCS 0.8.1 and / or 0.8.2
- Note: Enhanced GFI

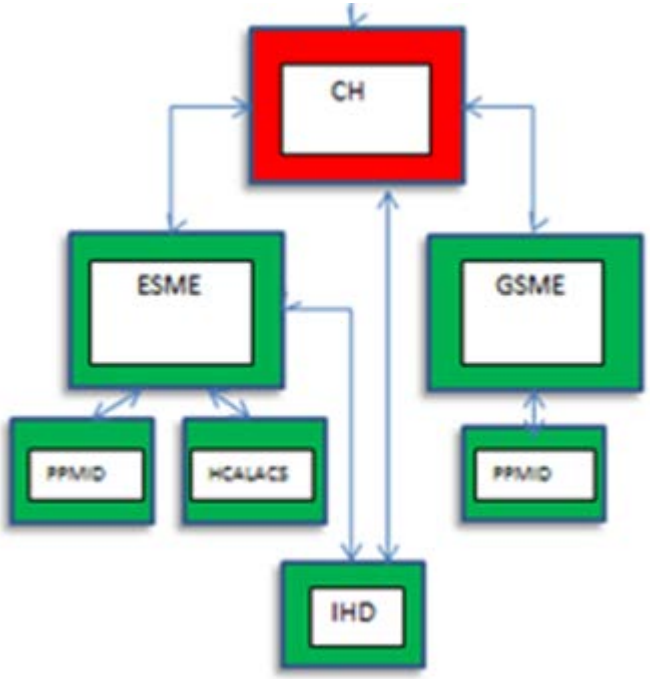
TEST REFERENCE DATA SET

- **Developing a set of reference data**
  - Service Requests
  - GBCS Commands
  - GBCS Responses / Alerts
  - MMC Responses
- **Based on updated version of GFI**
- **Success & Error Scenarios**
- **Different Uses for various market participants**
- **Being made available in tranches as GFI develops, success scenarios first**



ENHANCED GFI

- **Currently we are investigating the possibility of extending the benefits of GFI**
  - A Change Request is being assessed to enable GFI to communicate with, and via, Communications Hubs



- **Possible benefits:**
  - Greater confidence of DCC interoperability prior to DCC R1.3
  - Devices communicating with Communications Hubs
  - More device types tested
  - More confidence that further devices have interpreted GBCS similarly
  - Expedite devices to market

THANK YOU. QUESTIONS ?