T+2 SETTLEMENT CYCLE AND iMERCADO

CERTIFICATION PHASE WORKSHOP

November 07, 2018

Implementation of the T+2 Settlement Cycle Project depends on approval by the regulatory bodies

1. Certification Overview, Target Audience and Rule

2. Certification Environment, Customer Service and Support

3. Reference data, data mass and corporate actions – basic premises

4. Test scripts

5. SINACOR

6. Readiness Statement

7. Q&A

CHAPTER 1
Certification Overview, Target Audience and Rule

Certification Overview
Objective

To provide an environment with the BM&FBOVESPA Clearinghouse that allows institutions to assess existing functionalities and test the communications and integrations of their systems with B3 regarding adaptations to the T+2 Settlement Cycle and iMercado.

The Certification is built on the following foundations:

1. **Test script executions** by participants in the established period.

2. **Monitoring of test script execution and the clarification of doubts** by B3.

Certification Overview
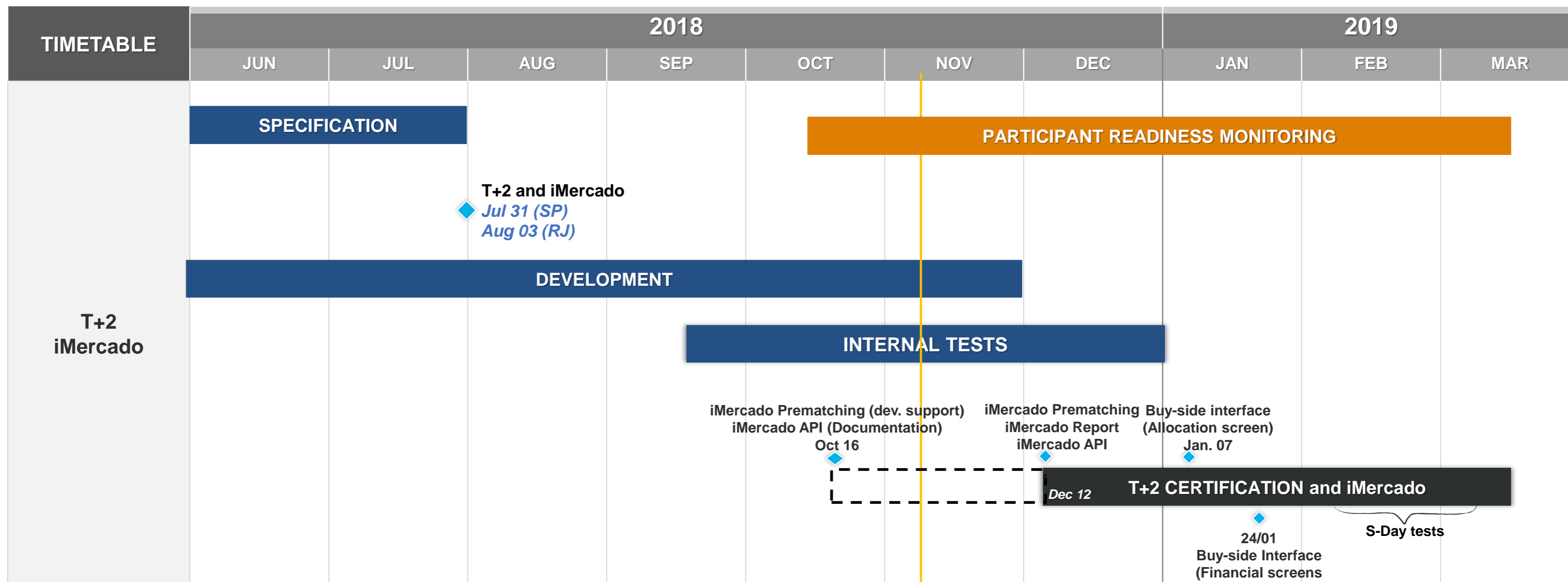## Target audience and rule

All participants must execute certification to assess process modifications resulting from the settlement cycle changing to T+2 and iMercado and must validate the adaptations made to the BM&FBOVESPA Clearinghouse systems and to their own systems to enable this change.

To this end, the following must execute tests in certification:

1. Clearing members.
2. Full Trading Participants.
3. Settlement Participants.
4. Custodians.
5. Managers, administrators and foundations (in the case of direct access, exclusively for iMercado).

Certification Overview
General Timetable of the Project*

TIMETABLE	2018							2019		
	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR

T+2 iMercado

SPECIFICATION

PARTICIPANT READINESS MONITORING

T+2 and iMercado
Jul 31 (SP)
Aug 03 (RJ)

DEVELOPMENT

INTERNAL TESTS

iMercado Prematching (dev. support)
iMercado API (Documentation)
Oct 16

iMercado Prematching
iMercado Report
iMercado API

Buy-side interface
(Allocation screen)
Jan. 07

Dec 12

T+2 CERTIFICATION and iMercado

S-Day tests

24/01
Buy-side Interface
(Financial screens

Nov 07

*Early implementations will be studied for risk mitigation

Implementation of the T+2 Settlement Cycle depends on approval by the regulatory bodies

CHAPTER 2
Certification Environment, Customer Service and Support

Certification Environment
Connectivity – Network and infrastructure permission

VPN

1. Participants must have a VPN with the BM&FBOVESPA certification environment.

2. The addresses to access the certification environment of the BM&FBOVESPA Clearinghouse and the Central Depository are available at http://www.ctc.bvmfnet.com.br/pt-br/download/ServicosNP.pdf.

3. The BM&FBOVESPA Clearinghouse and the Central Depository systems must be accessed using the Microsoft Internet Explorer 11 or Google Chrome browser as of version 45.0.24.
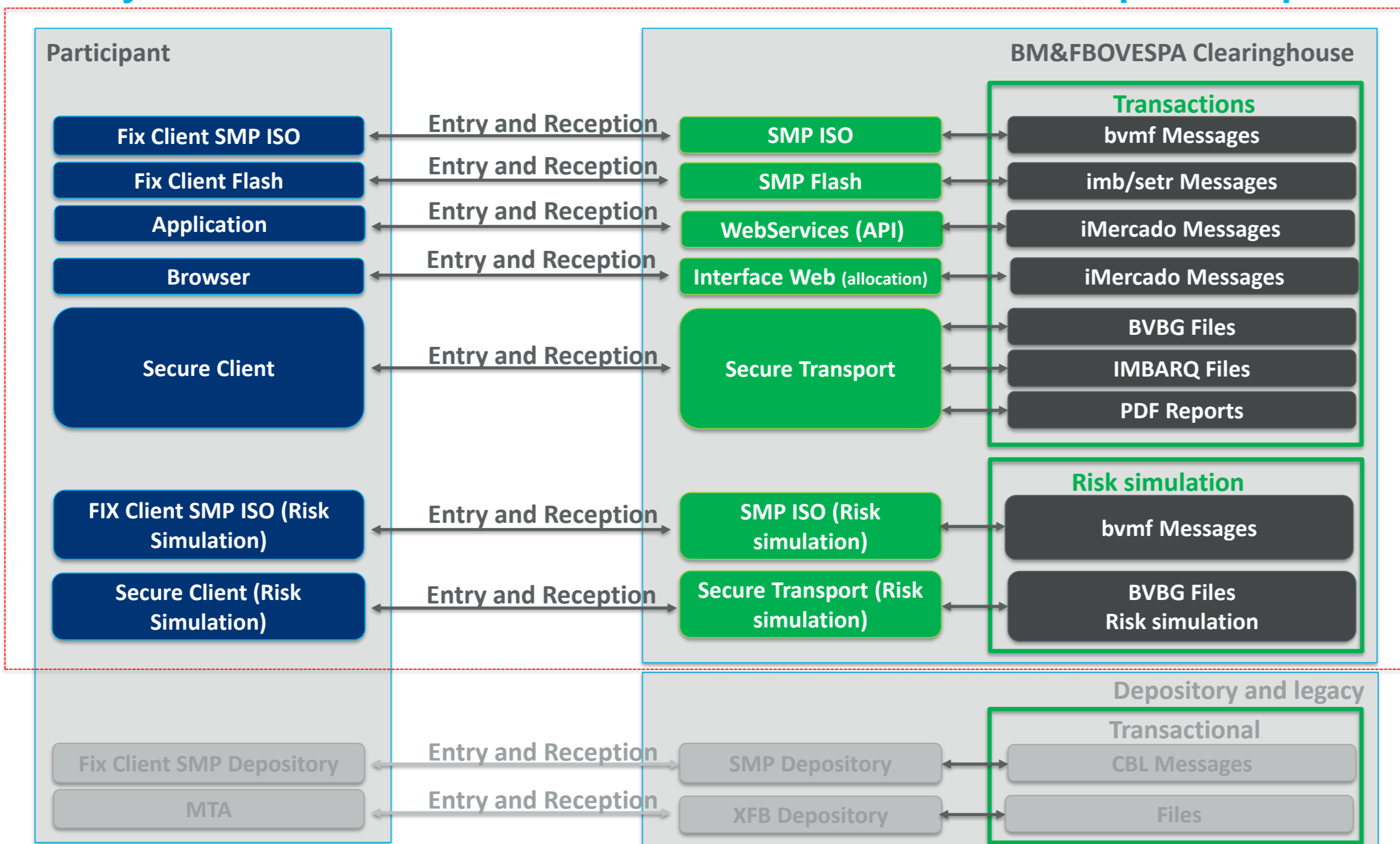
Certification Environment
Connectivity – BM&FBOVESPA Clearinghouse and iMercado

Access to the certification applications of the Clearinghouse and iMercado

1. BM&FBOVESPA's certification environment applications must be accessed through UAC-registered users.
   a. Access to Secure Client, SMP-ISO and SMP-Flash is executed through the service users.
   b. The other applications of the Clearinghouse are accessed through regular users.

2. Each participant's user with permission level must be active.
   ➢ If you do not have a user with permission level, need to reset the password, add or modify the user with permission level, please send an email to cert.D2@b3.com.br.

3. Administration of the common users' accesses and services is executed by each participant's user with permission level.

4. Access to the iMercado webservices (API) will be executed via Certification VPN or Internet, and will be validated via digital certificate (address to be disclosed in the future).

5. Access to the Web interface of iMercado will be executed via Certification VPN or Internet (address to be disclosed in the future).

Certification Environment
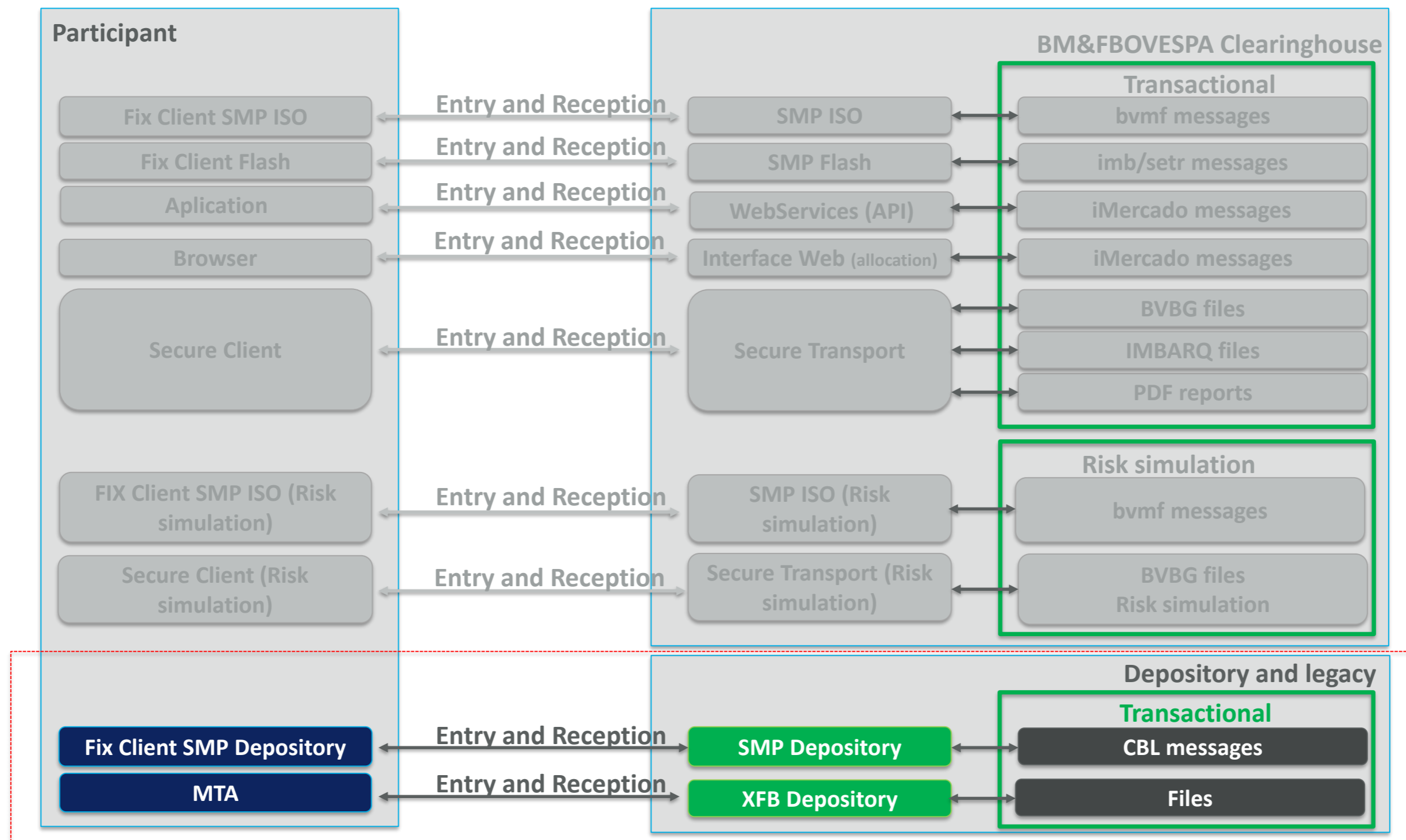## Connectivity – Communication between B3 and participants

Participant

Fix Client SMP ISO	← Entry and Reception →	SMP ISO
Fix Client Flash	← Entry and Reception →	SMP Flash
Application	← Entry and Reception →	WebServices (API)
Browser	← Entry and Reception →	Interface Web (allocation)
Secure Client	← Entry and Reception →	Secure Transport
FIX Client SMP ISO (Risk Simulation)	← Entry and Reception →	SMP ISO (Risk simulation)
Secure Client (Risk Simulation)	← Entry and Reception →	Secure Transport (Risk simulation)

BM&FBOVESPA Clearinghouse

Transactions
- bvmf Messages
- imb/setr Messages
- iMercado Messages
- iMercado Messages
- BVBG Files
- IMBARQ Files
- PDF Reports

Risk simulation
- bvmf Messages
- BVBG Files Risk simulation

Depository and legacy

Fix Client SMP Depository	← Entry and Reception →	SMP Depository
MTA	← Entry and Reception →	XFB Depository

Transactional
- CBL Messages
- Files

Certification Environment
Connectivity – Central Depository

Access to the certification applications of the Central Depository

1. Users registered on the System Access Control (SAC) must be used for accessing BM&FBOVEPSA's Certification Environment applications.

2. Each participant's user with permission level must be active.

   ➤ If you do not have a user with permission level, need a password reset, addition or modification of the user with permission level, please send an email to cert.D2@b3.com.br.

Certification Environment
Connectivity – Communication between B3 and participants

Project T+2 and iMercado Certification
Contracting the iMercado Service

Contracting the service

1. The service shall be contracted by signing the Adhesion Agreement to the iMercado Use Terms and Conditions.

2. Further information on contracting the iMercado Service can be obatined from the Service Development Area by telephone on +55 11 2565-7102 or by email at bvmfsolution@b3.com.br

Project T+2 and iMercado Certification
Customer Service and Support

Certification environment working hours

1. Business days (Monday to Friday) from 9:00 a.m. to 5:00 p.m.

2. Updates that make the environment unavailable will be informed to participants at least one week in advance.

Customer service and contact

1. As of December 14, 2018 there will be fortnightly conference calls to cover the certification development, the participants' readiness and matters related to Project T+2 and iMercado. Access data and the relevant times will be announced soon.

2. Participants contact customer service via specific channels described in detail in the following slide.

Project T+2 and iMercado Certification
Customer service to participants

Interaction		Contact Channel	
CERTIFICATION	Certification queries regarding connectivity systems, infrastructure and incidents.	**Certification Testing Center (CTC)** +55 11 2565-4400 (9:00 a.m. to 6:00 p.m.) cert.D2@b3.com.br	
EXTERNAL TRANSITION	Dedicated team for clarifying doubts and providing assistance throughout all Project T+2 phases, and for participant readiness monitoring.	**Integrated Communications** +55 11 2565-5986 / 5340 / 5352 / 7822 / 5710 (9:00 a.m.-6:00 p.m.) **projetoD2@b3.com.br**	
SINACOR	Specific queries regarding the SINACOR environment, systems and interactions.	**Implementation of the Certification Environment version** **Ways to schedule:** A. Request by MyIT *or* B. +55 11 2565-5000 option 5 *or* C. sinacor@b3.com.br .	**SINACOR Customer Service and Contact** +55 11 2565-5000 option 5, group 4 (9:00 a.m. to 6:00 p.m.) sinacor@b3.com.br

Reference data, data mass and corporate actions – Basic premises

Certification Strategy
Reference data - instruments

Tested instruments

1. Specific instruments will be defined for the tests.

2. The instrument list will contain the following types: **Cash, Forward, Options, Exercises and Securities Lending.**

3. The instrument list will be disclosed in the Certification Script.

4. The instruments will be available in the BVBG.028 file which can be received via Secure Client.

Certification Strategy
Reference data – Accounts and links

Accounts and links for tests

1. Participants must create the accounts and links for tests, complying with the structure to be set out in the following slides.

   ➢ CTC will assist with specific requests.

2. Accounts and links must be created before the certification stage starts and sent to CTC for preparation of the data mass.

Certification Strategy
Reference data – Accounts and links – FTP (GIVE-UP)

FTP – GIVE-UP									
Type	**Account**	**Master**		**Take-up**			**Custody Link**		**Collateralization**
		Type	**Master Account**	**Participant**	**Take-up Account**	**Type**	**Participant**	**Account**	**Type**	
Regular	Regular A									Participant
Regular	Regular B									Participant
Regular	Regular C									Participant
Regular	Regular D									Investor
Regular	Regular E									Investor
Regular	Regular F									Investor
Regular	Regular G									
Regular	Regular H			Def. by part.	Regular J	Regular				
Regular	Regular I			Def. by part.	Master A	Master				
Master	Master B			Def. by part.	Master C	Master				
Master	Master D									
Master	Master F									
Master	Master G									
Resident Subaccount	Subaccount A	Master	Master D							
Resident Subaccount	Subaccount B	Master	Master D							
Resident Subaccount	Subaccount C	Master	Master F							Participant
Resident Subaccount	Subaccount D	Master	Master G							Investor
Nonresident Subaccount	Subaccount NR A	Master	Master D							
Nonresident Subaccount	Subaccount NR B	Master	Master D	Def. by part.	Subaccount NR C	Nonresident				
Regular	Regular M									
Regular	Regular K							Def. by part.	Regular L	Regular	

Certification Strategy

Reference data – Accounts and links – FTP (TAKE-UP)

FTP – TAKE-UP						
Participant	Give-up Account	Type	Account	Type	Master Account	Type
	Regular AA	Regular	Master AB	Master		
			Subaccount A	Resident Subaccount	Master AB	Master
			Subaccount B	Resident Subaccount	Master AB	Master
	Regular AB	Regular	Regular AE	Regular		
	Master AA	Master	Master AC	Master		
			Subaccount NR A	Nonresident Subaccount	Master AC	Master
	Regular AC	Regular	Subaccount C	Resident Subaccount	Master AC	Master
	Regular AD	Regular	Regular AF	Regular		

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Certification Strategy
Reference data – Accounts and links – SP and ACST

SP										
Participant	Give-up Account	Type	Type	Account	Master Account	Type	Custody Link Participant	Account	Type	Collateralization
Def. by part.	Regular A	Regular	Master B	Master						
Def. by part.	Regular B	Regular	Master C	Master						
			Subaccount A	Resident Subaccount	Master E	Master				
			Subaccount B	Resident Subaccount	Master E	Master				
			Subaccount C	Resident Subaccount	Master F	Master				Participant
			Subaccount D	Resident Subaccount	Master F	Master				Investor
Def. by part.	Regular C	Regular	Regular F	Regular			Def. by part.	Regular J	Regular	
Def. by part.	Regular D	Regular	Regular G	Regular			Def. by part.	Regular K	Regular	Participant
Def. by part.	Regular E	Regular	Regular H	Regular			Def. by part.	Regular L	Regular	Investor
Def. by part.	Master A	Master	Master D	Master						
			Subaccount NR A	Nonresident Subaccount	Master G	Master				
Def. by part.	Regular O	Regular	Subaccount E	Resident Subaccount	Master H	Master				

Custodian		
Participant	Account	Type
All	Regular A	Regular

Certification Strategy
Mass of trades

Frequency of the masses and content

1. The **integration of the certification environments** for BM&FBOVESPA trading and the BM&FBOVESPA Clearinghouse **will be active** and consequently trading messages will be received both in the Drop Copy sessions and in the SMP ISO Capture sessions.

2. B3 will include masses for all participants at the following times: **10:30 a.m. and 2:30 p.m**. The mass of trades will contain the instruments and accounts destined for T+2 certification.

3. Additional masses of trades can be requested at cert.D2@b3.com.br

4. **Securities Lending Contracts must be created by the participants themselves.**

5. Details related to corporate actions and the dates of these actions will be announced in due course.

Test scripts

Test scripts
Strategy

CERTIFICATION SCRIPTS
WITH A SCOPE FOR TWO MOMENTS

FUNCTIONAL TEST SCENARIOS

S-DAY testS

Processes covered

- Capture, Allocation and Give-up
- Position Control
- Securities Settlement and Cash Settlement
- Risk Management and Collateral
- Depository and Corporate Actions
- iMercado capture, Allocation, Give-up, Pre-Matching and Registration Form
- IMBARQ

Implementation plan simulation including:

- T+3 Settlement, on the previous Friday
- First T+2 trading session on Monday
- S-Day: first settlement of T+2 and last settlement of T+3, both on Wednesday

The script will be available on the project's website: www.b3.com.br/projetoD2

Script for functional test scenarios
Capture, Allocation and Give-up

1. Consultation of executed trade.

2. Allocation inclusion and exclusion.

3. Trade give-up.

4. Off-hour allocation and give-up.

5. Give-up acceptance, rejection and cancellation.

6. Trade cancellation.

7. Files (BVBG.081, BVBG.012, BVBG.013, BVBG.014 and BVBG.015).
   ➢ New flow: BVBG.013 file received automatically by the Custodian upon the close of allocation on T+1

Script for the functional test scenarios
Position Control

1. Position consultation – Cash market and securities lending.

2. Securities lending maintenance.

3. Options exercise.

4. Forward contract maintenance.

5. Coverage of options.

6. Corporate Actions.

Script for functional test scenarios
Settlement

Securities settlement

1. Consultation of settlement instructions with new T+2 deadline.
2. Failures forecast as of T+0.
3. Subaccount replacement on T+1 or T+2.
4. New custody transfer authorization timeframes.
5. New flows:
   A. Custody authorizations as of T+0 (parallel with allocation)
   B. Restriction of delivery by the Custodian

Cash settlement

1. Consultation of financial entry (cash market, equities forward).
2. Buyback.
3. BVBG.020, 21 and 22 file.

Script for functional test scenarios
Fee

Fee

➢ Confirmation of fee entries for the cash, forward, auction and option exercise markets for execution on T+2 in the SLF system and BVBG.021 file.

Script for functional test scenarios
Risk and Collateral

Risk management

1. CORE0, CORE1 and CORE2 risk update consultation.

2. CORE0 risk update consultation with delivery failure.

3. CORE0 risk update consultation with buyback.

4. CORE0, CORE1 and CORE2 risk simulation.

5. CORE0, CORE1 and CORE2 risk simulation with portfolio copy.

Collateral

1. Settlement instruction designation to subaccount 23.

2. Consultations on the Margin Call Monitor.

Script for functional test scenarios
Central Depository and Corporate Actions

The B3 Central Depository functionalities, which are within the scope of the T+2 settlement cycle project, will be available for participants in the Certification environment.

➢ As the current forms of interaction with the Central Depository system will not change, tests regarding the **i) Securities deposit and ii) Primary market ETF Paying in/Redemption** flows are optional and participants can schedule them with the Certification team by telephone on +55 11 2565-4400 or by email at: cert.D2@b3.com.br

Script for functional test scenarios
IMBARQ

IMBARQ005 – Securities Settlement Information (file for conciliation purposes)

1. Request.
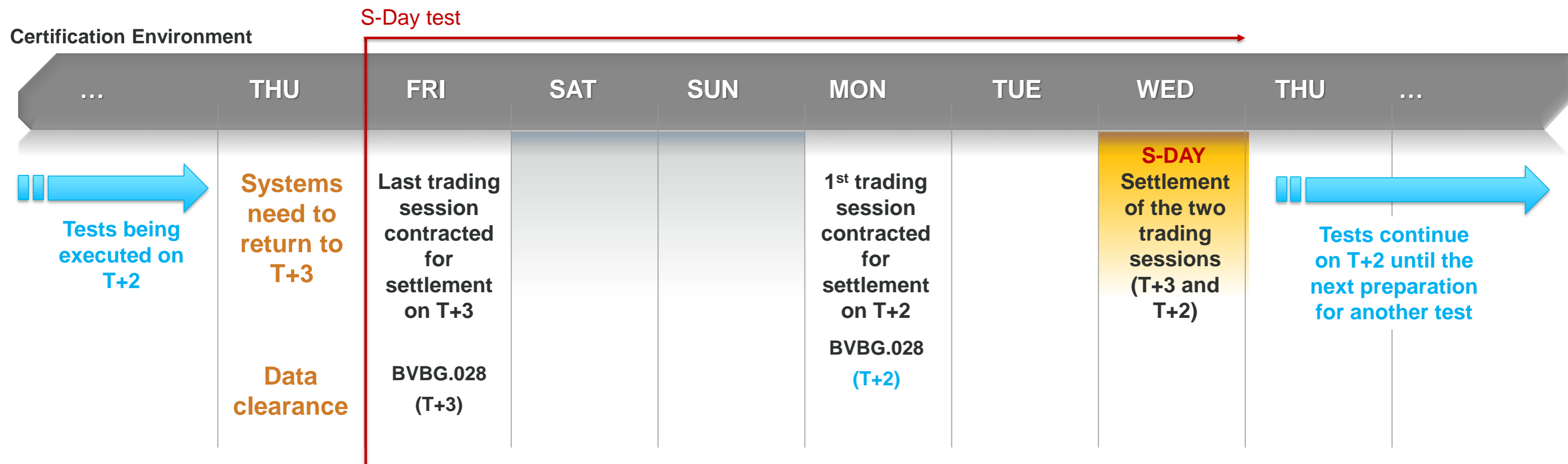
2. Approval.

3. Receipt and treatment.

Script for functional test scenarios
iMercado Capture, Allocation, Give-up, Pre-Matching and Registration Form

1. Executed trade.

2. Distribution by trade and lot.

3. Allocation exclusion.

4. Give-up cancellation.

5. Primary ETF – trade capture, price update and cancellation.

6. Trade cancellation.

7. Brokerage bill.

8. Net settlement matching.

9. Pre-Matching.

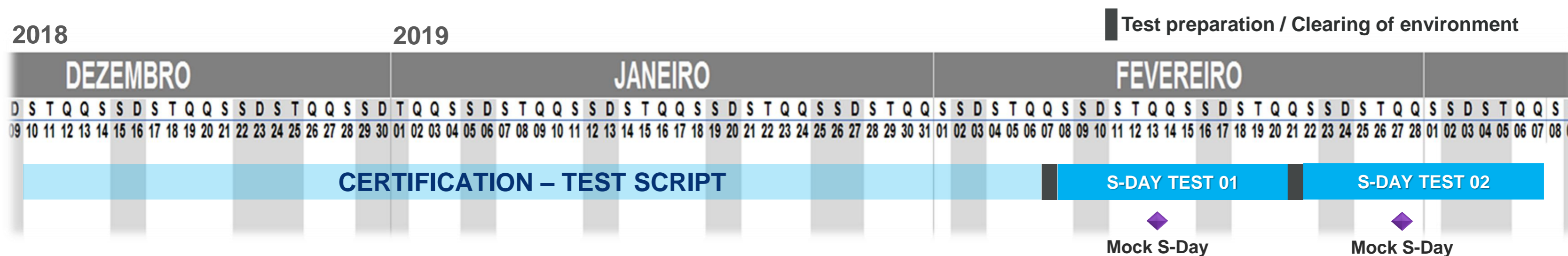10. Registration form.

Script for S-Day tests
Dynamics

Certification Environment

S-Day test

...	THU	FRI	SAT	SUN	MON	TUE	WED	THU	...
	Systems need to return to T+3	Last trading session contracted for settlement on T+3			1st trading session contracted for settlement on T+2		S-DAY Settlement of the two trading sessions (T+3 and T+2)		
Tests being executed on T+2	Data clearance	BVBG.028 (T+3)			BVBG.028 (T+2)			Tests continue on T+2 until the next preparation for another test	

1. The systems will return to T+3 at the start of all of the tests (Thursday). The certification environment will be cleared.

2. On Friday we will simulate final trading for settlement on T+3.

3. T-Day (1st trading session contracted for settlement on T+2) will occur on Monday.

4. S-DAY (settlement of the two trading session, T+2 and T+3) will occur on Wednesday.

CHAPTER 5

SINACOR

SINACOR
Certification environment preparation

Checklist

1. Installation of the V18.2.1 version of SINACOR.

2. Preparation of the mass of tests.
   A. Accounts (Manual, via BVBG002, BVBG102 files)
   B. Links (Manual, via BVBG005 files)
   C. Instruments (clearance script and import of BVBG028)

3. FIX Sessions.
   A. iMERCADO
   B. SMP ISO
   C. DROP COPY

SINACOR
Certification environment preparation

Checklist (continued)

4. Files.

   A. Secure Client (Ex: **BVBG.018**, **BVBG.019**, **BVBG.021)**

   B. MTA (Depository balance and transfer files)

5. Registration and configuration of Current Account histories for T+2.

   ➢ Via SINACOR screen or data bank scripts

6. Designation of custodians in customers' registration, BOVESPA Activity.

7. Installation of version V19 (as of Dec. 03).

8. Preparation process for the SINACOR modules dates.

SINACOR
Certification environment preparation

Infrastructure pre-requisites for installation of the SINACOR V18 version

	Work Station	Applications Server
Framework .Net	3.5 / 4.5.2	3.5 / 4.5.2
Data Access Component	Oracle Client 11.2 – 32 bits (for workstations that use CENTURA screens)	Oracle Client 11.2.0 – 32bits ODP.NET 2.112.4.0 ou 2.112.1.2
Operational Systems	As of Windows 7	As of Windows 2008 R2
Hardware	• **Processor:** Intel Core i5 or more • **Memory RAM:** 08Gb • **Disk:** 4 Gb free • **Video Card:** Compatible with DirectX 9.0 256Mb • **Monitor:** 15" Color SVGA – 1024x768 or more	• **Processor:** Intel® Xeon® Processor E3 Family or more • **Memory RAM:** 32Gb • **Nucleuses:** 16 or more. • **Disk:** 50Gb free • **No. of servers:** 03 (recommended minimum)

SINACOR
Certification environment preparation

1. A **v19 version of SINACOR** updated for the .Net 4.7/64bits framework will be granted permission too.

2. Use of the **64 bits version is optional** for certification.

	Work Station	Applications Server
Framework .Net	4.7.2	4.7.2
Data Access Component	Oracle Client 11.2 – 32 bits (for workstations that use CENTURA screens)	Oracle Client 11.2.0 – 64bits ODP.NET 4.121.2.0 -x64
Operational System	As of Windows 7 Service Pack 1 - x64	As of Windows 2008 R2 – x64
Hardware	• **Processor:** Intel Core i5 or more • **Memory RAM:** 08Gb • **Disk:** 4 Gb free • **Video card:** Compatible with DirectX 9.0 256Mb • **Monitor:** 15" Color SVGA – 1024x768 or more	• **Processor:** Intel® Xeon® Processor E3 Family or more • **Memory RAM:** 32Gb • **Nucleuses:** 16 or more. • **Disk:** 50Gb free • **No. of servers:** 03 (recommended minimum)

➤ The framework update provides better use of computational resources such as improved screen control performance, new resources that make usability better and more responsive as asynchronous programming, support for parallel and multicore processes, improved memory clearing performance and future technological developments.

Provision of the list of scenarios for validation in the certification process, such as:

1. Allocation of net and gross transactions (Cash T0 and T+1, Options, Forwards and Fixed Income) in a Master Account, Distribution and Regular Account.

2. Buyback.

3. Settlement conciliation and Pre-matching (Import of all of the BVBG.019 files).

4. Outstanding treatments (Import of BVBG.018 file).

5. Financial conciliation (Import of all of the BVBG.021 files).

6. Validation of the settlement flow.

7. iMERCADO message flows

   ➤ Registration form, Pre-matching and allocation.

CHAPTER 6

Readiness Statement

Readiness Statement
External Transition | Integrated Communications

Monitoring of the test development, as well as participants' readiness, will be executed by the External Transition team.

There will be a specific form covering the main control points to be disclosed weekly by the participants, on every Thursday as of the opening of Certification.

The template will be available on the Project T+2 website : www.b3.com.br/clientes > Project T+2

CHAPTER 7

Q&A

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Thank you

If you have any questions,
please contact:

projetoD2@b3.com.br