

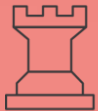


MISYS
FINANCIAL SOFTWARE

FusionBanking Loan IQ Release Policy & Testing

Lorenzo CERUTTI
Systems Advisory Group

Suresh VAZRAPU, Renjith PILLAI
Quality Assurance



Misys **Connect**
Strategic advantage

Connect
Innovate
Expand

Welcome to the Misys Topic Of the Month!

Format

- 45 min presentation by Misys experts
- 15 min Questions and Answers

Objectives

- Present product features and/or market requirements new / little known / under spotlight
- Share views and help us understanding client requirements

Calendar

- Cross-product program. For Loan IQ, on average every 2-3 months
- Agenda published on the Client Portal, and invitations sent 2 weeks in advance
- Topics also suggested by clients (can use Survey)

Agenda

- **Fix Release Policy – Changes from V6 to V7**
- **Quality Assurance**
 - **Type of tests**
 - **Deep dive on: Regression Testing**
 - **Deep dive on: Automated Testing**
 - **Continuous Improvement**
- **Question and Answers**

Pain Points of V6 Fix Delivery Model (Individual Fixes)

Many client specific trees that differ in content and are difficult to manage

Clients are not aware and don't benefit from fixes done for other clients

Misys fix testing coverage is limited

Turnaround time of fixes is high and unpredictable

In order to overcome these situations, Misys has implemented the Service Pack (SP) model to proactively bundle and distribute important fixes to clients

The Service Pack model has been introduced from Version 7 of FusionBanking Loan IQ

Service Pack model - 3 Questions

What is the Service Pack Model?

How is a Patch different from an Individual Fix?

How do I transition to this model?



What is the Service Pack Model?

Major Release

- ✓ Fundamental / Architectural Change

Minor Release

- ✓ On average every 12-18 months

Service Pack

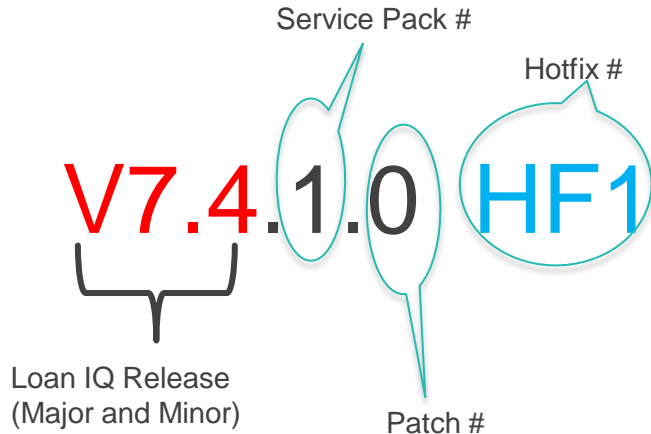
- ✓ Complete redelivery of the system
- ✓ Normally contains new features as well as fixes

Patch

- ✓ Set of fixes for high and critical issues
- ✓ Normally does not contain new features
- ✓ Delivered periodically for each supported SP version

Hotfix

- ✓ Only for Critical production issues or go-live showstoppers



SP Versions for which we currently issue periodical patches

7.1.17

7.2.5

7.2.6

7.2.7

7.3.1

7.4.1

Frequency higher on
most recent versions

How is a Patch different from an Individual Fix?

- ✓ is a bundle that contains multiple fixes available for all clients
 - is not client specific
- ✓ release schedule is planned
 - coordinate with Customer Advocate
- ✓ has a concept of a cut-off date
 - a client critical or high issue must have a fix before the cut-off date to make that Patch
- ✓ goes through a more rigorous regression test
 - testing for a V6 fix was focused on the fix

How do I transition to this model?

✓ More planning

- Liaise with your Customer Advocate to decide which Patches you intend to take
- Share concept of Patch cycle with end users
- Align the Patch schedule with your test and release cycle



✓ Optimize your testing

- Ensure you have a repeatable testing process (automated or not), including Misys and non-Misys software.
- Review Release Notes and Known Issues document (both available on Aspera) in order to decide scope of testing

✓ Shared testing

- Consider providing your test cases > gap analysis > added to regression suite > Misys can provide evidence of test results – if required
- Consider providing suggestions for impact analysis, when logging a case or during its processing.

Service Pack model – Benefits

**Corrective > Preventative
maintenance**



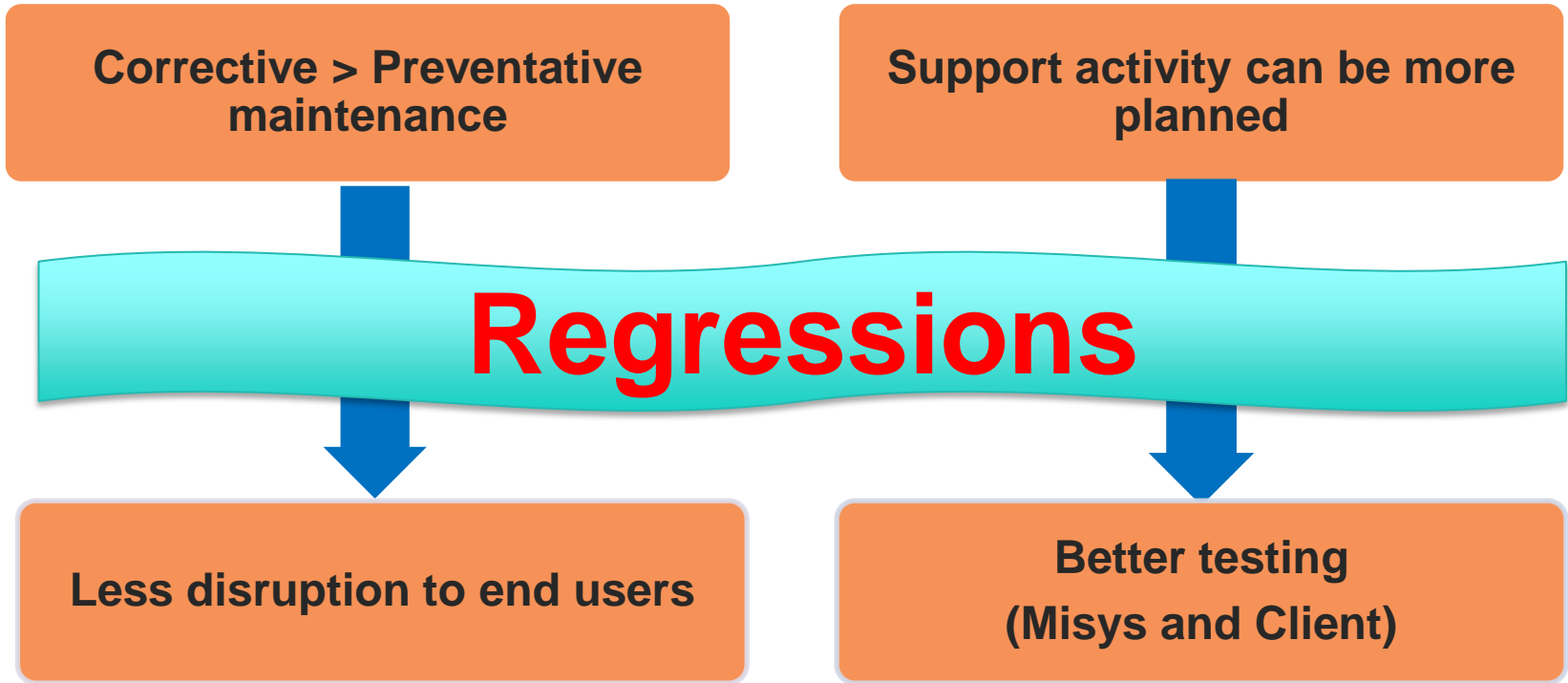
Less disruption to end users

**Support activity can be more
planned**



**Better testing
(Misys and Client)**

Service Pack model – Benefits



Misys Testing

Quality Assurance team - managed by
Bhabani Mishra

59 resources for Lending
20% increase in last two years

Regression testing greatly expanded, and still
expanding, since v7 Service Pack Model

QA Testing for Patches and Hotfixes (after Development tests)

Test Type	Description	Performed
New fixes Testing	Test to ensure that the fixes resolve the defects reported by the customer.	Manual
Impacted Areas Testing	Unit regression testing of areas which are impacted by the fixes. Impacted areas are determined by Dev and QA, through both functional and code analysis.	Manual
Continuous Integration Tests	Set of test scenarios to ensure that core functionalities (including UI, API and Batch) are performing as expected.	Automated
Regression Testing (Not for Hotfixes)	Approx 10k Test Cases Started with 7.2.7 and increasing at each version On average 5 working days	Mostly automated
Candidate Qualification Test	Test performed to ensure the final package uploaded to Aspera is the correct one. Steps: download software from Aspera, install in test environments following published instructions and perform CIT.	Automated and Manual

Automated testing coverage – As of June 2016

	Test Type	Description
CIT	Core Scenarios	759 Test cases
	API Scenarios	242 Test cases - Used for Legacy API/JMS & webservice.
Regression Test	Core Scenarios	1176 scenarios : Covering Core functionality
	L3 scenarios	2400 test cases: Critical & High defects reported by customers
	Customer scenarios	1604 Test cases from various customers
	Enhancements	4971 test cases covering 210 customer specific/strategic enhancements.
Batch Testing	DB Compare	Only done for Service Packs and Releases

Additional Tests for new Releases and Service Packs

Test Types	Description	Performed
Continuous Integration Tests	Set of test scenarios to ensure that core functionalities (including UI, API and Batch) are performing as expected.	Automatically on Daily Build
System Test	Testing of the new features added as part of release or service pack.	Automated & Manual
Performance Testing	Includes Load Testing, Endurance Testing, Batch Performance Testing See next slide for details	Automated
Interface Testing	Ensure that Loan IQ works seamlessly with all supported interfaces: Fax, SMTP, 3 rd Party interfaces	Automated & Manual
Installer Testing	Testing of Loan IQ Installer	Manual
Tech Stack Testing	Certification of Loan IQ against various tech stacks.	Automated & Manual

Performance Testing

Tests Performed	Description	# Users / Duration
Load Testing	Tool : Transactions recorder – In house tool Scenarios : 40 commonly used transactions Measures : Server response time and baseline is previous release	Normal Load - 147 users Peak Load - 408 users Scalability - 816 users
Endurance Testing	Testing endurance level and memory leaks	Normal Load test for extended hours (24 hours)
Batch Testing	To ensure jobs are completing within time and working without errors	Run master batch net in a particular zone

Test Automation

- Tool : UFT & HP QC
- Framework : Misys Test Automation Framework
 - Keyword driven framework
 - Batch execution – Offline/Online (with no human intervention)
 - Intelligent test reporting – Offline, Email
 - Connection to databases – Verify database contents
 - Customized Exception & Recovery mechanism
- Approach
 - In Sprint Automation – new development
 - Heat Map review
 - Customer Test cases

Test environment

Database

Internal Database with generic settings.
In the case of customer specific enhancements, or if there is only one customer active in the specific version, will use customer database (where available)

License

Generic License with all possible enhancements turned on.
In the case of customer specific enhancements, or if there is only one customer active in the specific version, will use customer license.

Continuous Quality Improvements

- Up stream Quality
 - Improve Unit Test process
 - Stringent Code Review process
 - Implement static code analysis
- Implement RCA for defect leakage and reopens
- Automate forward fits
- Improve Regression & CIT Coverage
 - Upgrade factory test cases
 - Heat Map review
 - Automated CIT for scrum teams
 - Batch & API coverage
- Enhance MTAF
 - Enhance automation framework to use customer license and settings

Key take-aways

- Misys recognizes the importance of testing
- In particular, regression testing is critical to ensure success of the V7 Release Policy – which in turn is critical to improve quality of software
- Coverage is continuously growing, and clients upgrading to v7.3 and above should have seen / will see an improvement
- Clients can contribute their test cases
- Hotfixes do not undergo Regression Testing > should be avoided as much as possible

Next steps

In one
minute

- Questions and Answers

Today

- Presentation PDF
- Link to Webex recording

Survey

- Rate this session
- Suggest topics for future session

Anytime

- lorenzo.cerutti@misys.com

Questions and Answers





Lorenzo.Cerutti@misys.com
Suresh.Vazrapu@misys.com
Renjith.Pillai@misys.com

[misys.com](https://www.misys.com)



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