

Wanted -Testable performance requirements

Lessons from Performance Testing

Lorraine Mei



About Me



- Tester, Scrum Master, DevOPs practitioner at **Testify AS**
- 16 years experience in system testing and integration, specializing in non-functional and end-to-end testing of large business solutions
- Find me at <https://www.linkedin.com/in/lorrainemei/>

Introduction



Objective: To share insights from performance testing of an aviation information system in a semi-agile environment.



Key Challenges:

1. Ambiguous non-functional requirements
2. Mixed agile/traditional team structures.

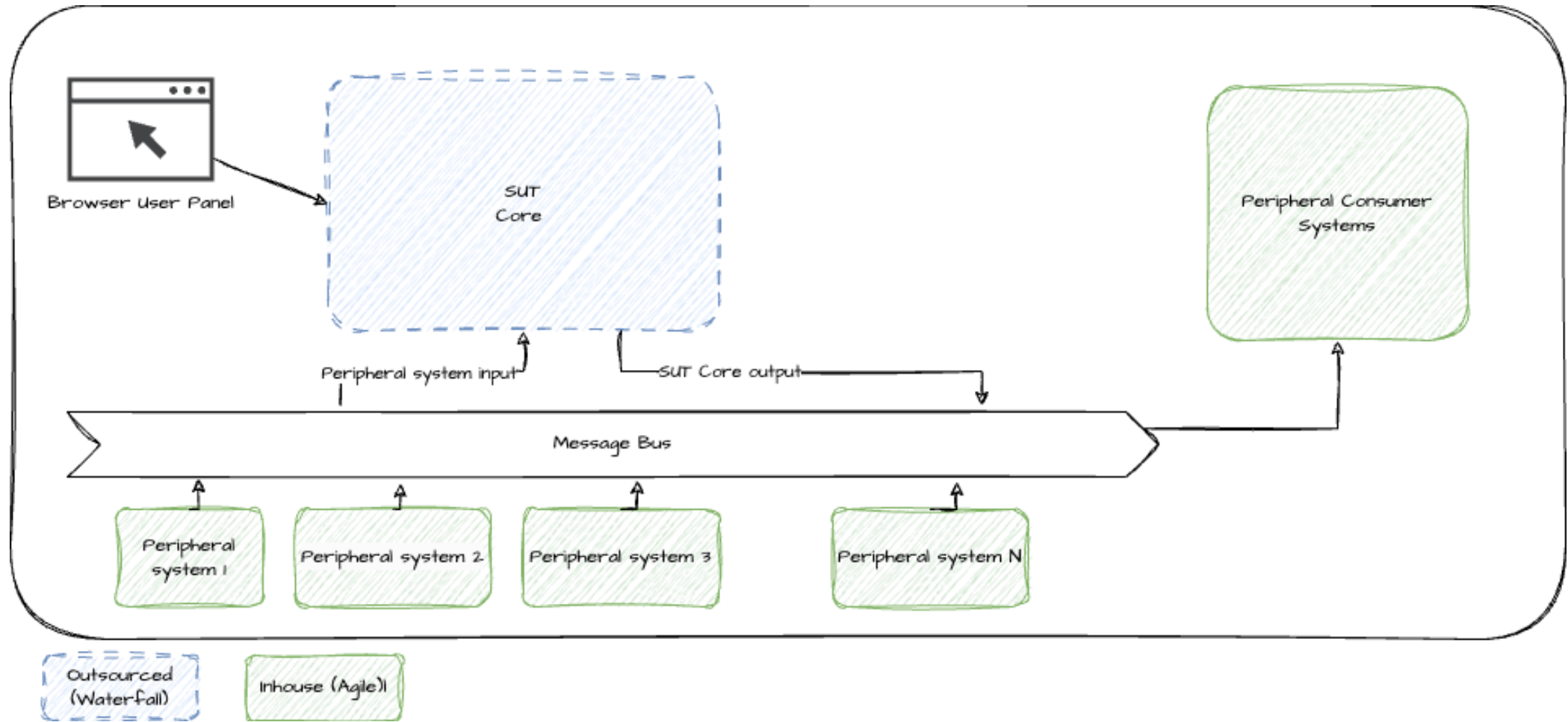
Background

- **Project Overview:** Development of a new aviation information system for a Norwegian aviation administration company.
- **Setup:** Core system by vendor (traditional approach) and peripheral systems by in-house agile teams.
- **Non-functional Requirements:** Initially based on legacy system dimensions.



Afgang Departures						
Time	Flight	Gate	Destination	09:21		
08:25	SK4011		Stavanger	Cancelled		
08:30	DY182		Haugesund	Cancelled		
08:35	DY270		Kristiansand	Cancelled		
08:40	SK480		Stockholm	Cancelled		
08:45	SK816		Düsseldorf	Cancelled		
08:45	DX542		Stord	Cancelled		
08:45	SK4613		Aberdeen	Cancelled		
08:50	AY912		Helsinki	Cancelled		
08:50	SK391		Bardufoss	Cancelled		
09:05	SK4829		Hamburg	Cancelled		
09:15	SK255		Bergen	Cancelled		
09:15	SK455	E12	København	Gate closing		
09:20	W62418		Budapest	Cancelled		
09:20	SK211		Kristiansand	Cancelled		
09:25	SK864		Stockholm	Cancelled		
09:30	SK955		Miami	Cancelled		
09:30	DY1020		Warszawa	Cancelled		
09:30	DY1404	E11	Nice	Gate closed		
09:30	DY1632	D7	Wien	Gate closing		
09:35	DY1872		Roma/Fiumicino	Cancelled		
09:35	EW7199		Hamburg	Cancelled		
09:40	SK683	D3	Malaga	Go to gate		
10:40	LO482		Warszawa	Cancelled		
10:40	SK4106	A4	Bodø			
10:45	DY1550	D10	Budapest			
10:45	SK4713		Roma/Fiumicino	Cancelled		
10:50	SK257		Bergen	Cancelled		
10:50	DY1060	D4	Tallinn			
10:50	DY1816	D6	Gran Canaria			
10:55	DY812		Stockholm	Cancelled		
10:55	SK4609	F14	Manchester			
10:55	SK484	D7	Stockholm			
11:00	SK907		New York/Newark	Cancelled		
11:00	SK338		Trondheim	Cancelled		
11:00	DY1828	D2	Lanzarote			
11:00	WF800	A26	Leknes			
11:00	SK837	D9	Paris/CDG			
11:00	WF1141	A24	Ørsta-Volda			
11:15	SK4675	D5	Alicante			
11:20	DY1072	E9	Riga			
11:20	DY1156	D8	Munchen			
11:25	SK4416		Tromsø	Cancelled		
11:25	DY1640		Edinburgh			
11:25	UA8762		Munchen			

Project Setup



Challenges

Dual Role: 1) Agile team member , 2) part of a new testing team in waterfall

Initial Testing Setup:
Lack of detailed non-functional requirements and absence of a specialized testing team.

Identified Problems

- **Ambiguous Requirements:**
Example - 'System should support 1000 READ operations and 100 UPDATE operations with 95% responses within 5 seconds.'
- **High-Level Requirements:** Lack of detailed prerequisites and considerations of background traffic.



✓ Addressing Ambiguities

- **Initial Steps:** Reaching out to product owner and system architect.
- **Learning :** Performance benchmarks were aspirational rather than precisely defined.



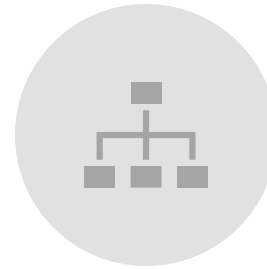
Testing Process



1. DEFINE PERFORMANCE TESTING STRATEGY:



2. ANALYZED SYSTEM'S BACKGROUND TRAFFIC.



3. DEVISED REPRESENTATIVE LOAD PROFILES FOR READ AND UPDATE OPERATIONS.

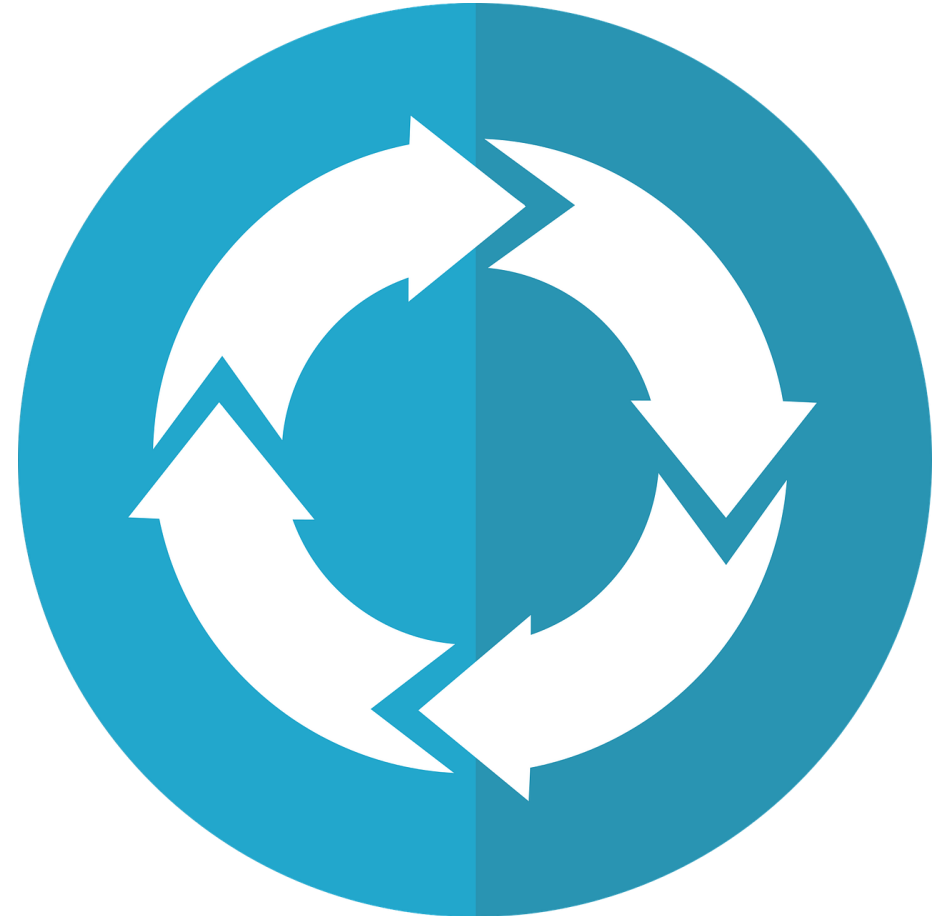


4. INCREMENTAL TESTING: STARTED WITH LOWER LOADS AND SCALED UP.



Collaboration and Iteration

- **Virtual Performance Team:**
Included test team members, agile developers with DevOps expertise, and infrastructure specialists.
- **Semi-Agile Approach:**
Emphasized communication, openness, and flexibility.



Results



- **Initial Findings:** System could only handle 150 READ operations under medium background traffic.
- **Improvements:** Hardware enhancements and code refactoring increased capacity to 600 READ and 100 UPDATE operations.

Key Learnings



1. Continuous retrospection and openness enhanced problem-solving.



2. Cross-functional collaboration is more effective than vertical integration.



3. Need for a more business-oriented PO.



4. Daily standups and team discussions were crucial.



5. Confluence improved documentation and collaboration.



6. Impact: Enhanced system performance and redefined benchmarks.

