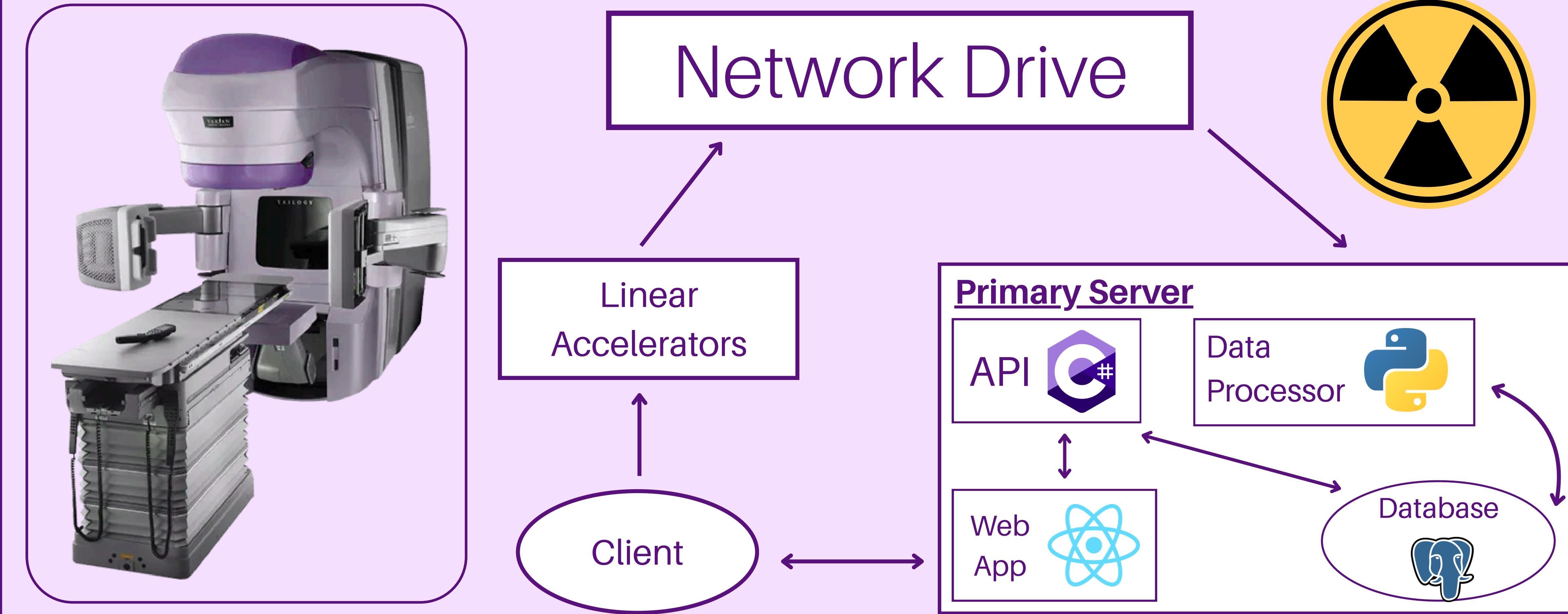


1 Abstract

Machine Performance Check Plus (MPC-Plus) is a full-stack Quality Assurance ecosystem designed for the modern medical physics department. By leveraging a distributed architecture featuring a Python-driven data extraction engine, a PostgreSQL database, and a React-powered frontend we provide a centralized hub for multi-machine tracking. Our system automates threshold monitoring and provides deep-dive analytics into geometry and beam consistency, ensuring patient safety through algorithmic precision.

3 Methods



5 Conclusion

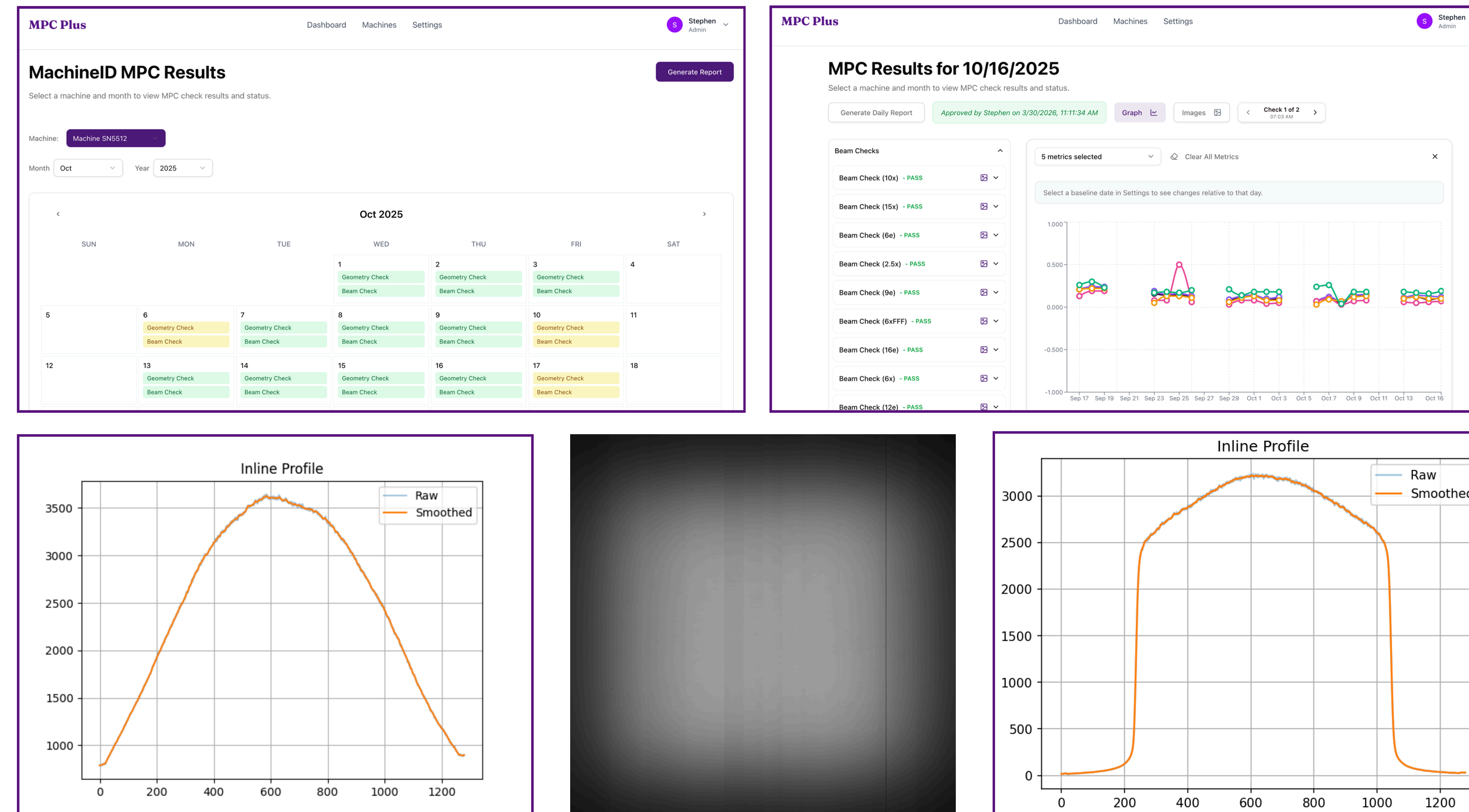
MPC+ streamlines QA workflows, enhances decision-making, and ensures compliance through centralized data management, automation, and clear performance insights.



2 Background

Radiation oncology clinics rely on daily QA, but existing tools lack analytics, auditing, and workflow support, making data review inefficient and fragmented.

4 Results



MPC+		Session Report	
Machine Performance Check		Machine: Machine SN5512	Date Range: 11/03/2025 - 11/03/2025
		Generated: 3/30/2026 4:14 PM	
Overview		9/9 Within Thresholds	
Total Checks: 9			
Beam Checks: 8			
Geometry Checks: 1			
Beam Check (6xFFF)		PASS	
Date: 11/03/2025 6:56 AM			
Approved by Stephen on 02/17/2026 4:42 PM			
Metric	Value	Threshold	Status
Relative Output	1.910	N/A	PASS
Relative Uniformity	0.320	N/A	PASS
Center Shift	0.190	N/A	PASS
Beam Check (10x)		PASS	
Date: 11/03/2025 6:56 AM			
Approved by Stephen on 02/17/2026 4:42 PM			
Metric	Value	Threshold	Status
Relative Output	1.850	N/A	PASS
Relative Uniformity	0.220	N/A	PASS
Center Shift	0.230	N/A	PASS

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