Websym

Case Study

The ISV is a leading provider of telecom expense management products in the US. They have 100+ customers including a few Fortune 500 organizations.

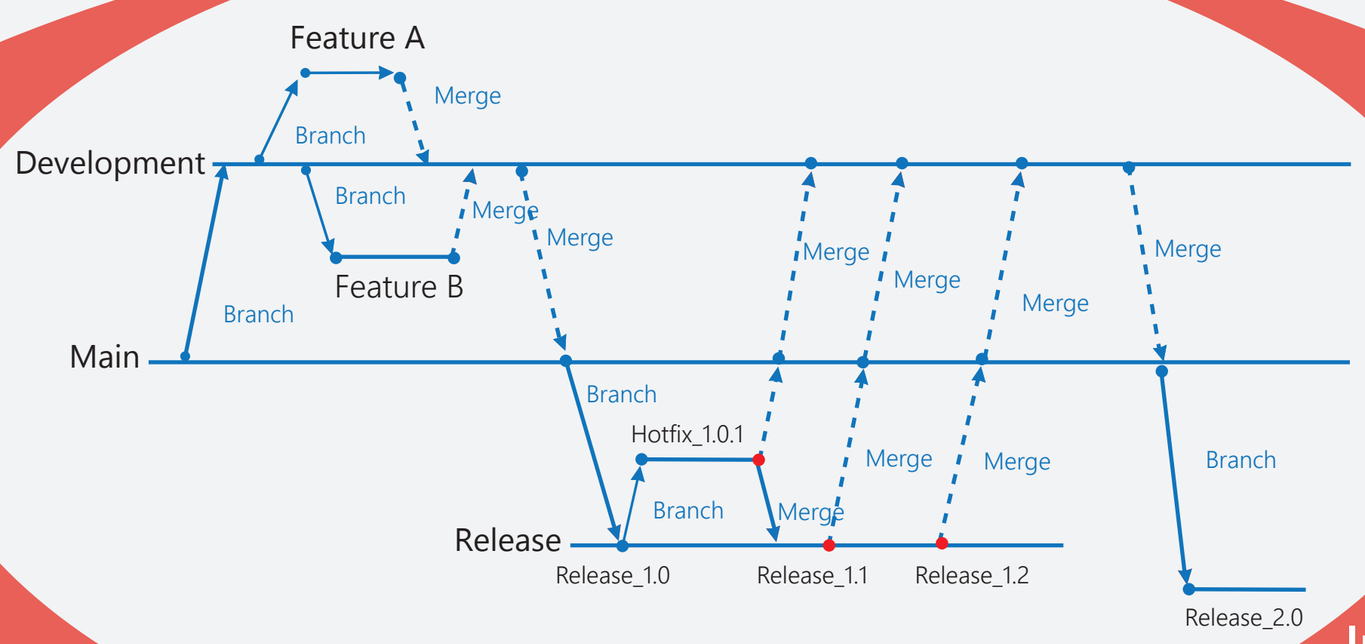
Product Characteristics

- Web application built using Asp.NET and deployed on IIS 7.
- The application uses a n-tier architecture with a set of Web API's being exposed to external partners.
- SQL Server 2012 is used as the OLTP database as well as the data warehouse.
- Application logic resides entirely in database stored procedures.
- Microsoft PowerBI is the BI platform.

Development & Deployment Environment

- TFS 2010 was used as the ALM tool.
- Dev environments were local to developers.
- Test, Staging and Production environments are virtualized with physical server hosted on Rackspace.
- SQL Server databases are deployed on physical servers hosted on Rackspace.
- A single production environment has 10 application instances configured as IIS websites.

SCCM



Identified Issues

- Low confidence in code fixes being applied for bug resolution.
- Error prone and time consuming database upgrades

Root Cause

- Code reviews not enforced.
- No branching strategy being followed.
- Code check-ins not tagged to work items/bugs.
- SQL scripts not version controlled.

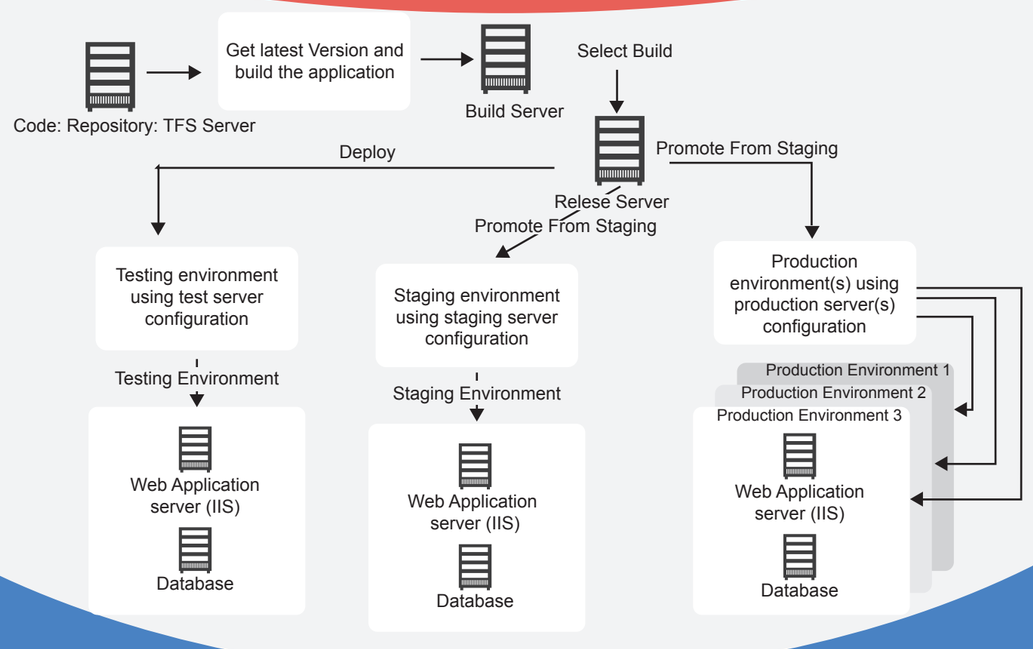
Solution

- Code analysis configured to validate code quality during compilation.
- Gated check-in's configured to prevent code check-in's unless code quality is above specified thresholds or if change set is not associated with a work item/bug.
- Code review process enforced in TFS by modifying the project template.
- Feature based branching implemented along with support for service branches for major releases.
- SQL database projects created in TFS to enforce version control on all SQL scripts.

Impact

- Code merging time reduced by more than 60%
- Issues related to incorrect code check-in's reduced by more than 80%
- Substantial improvement is code quality as measured through code analysis metrics
- Automated creation of SQL update scripts has significantly reduced deployment errors related to data-base upgrades.

Build and Release



Identified Issues

- Manual builds were triggered on an ad hoc basis.
- Accurate information on builds deployed in various environments not available.
- Deploying patch fixes and upgrades to multiple production environments took between 2-3 months based on the nature of the deployment.

Root Cause

- No CI pipeline in place.
- No centralized repository for storing build packages. Build packages stored in the file system.
- No governance enforced on deployment of builds.
- Build promotion between Testing, Staging and various Production environments was done by recompiling source code.

Solution

- Automated build scripts created using MS Build.
- CI pipeline configured to generate scheduled builds using TFS Build Server.
- Visual Studio Release Manager configured to manage various deployment environments and to enforce release governance and automate rollbacks in case of deployment errors.
- Build promotion between Testing, Staging and various Production environments implemented using packages stored in the TFS Build Server repository.

Impact

- Build creation time reduced by more than 90%.
- New release errors reduced by more than 90%.
- Upgrade errors reduced by more than 80%.
- Birds eye view of all environments available to all authorized users.

Monitoring

Identified Issues

- Slow response to application failure incidents.
- Root cause analysis of incidents took a long time.

Root Cause

- No monitoring of application parameters in Production environments.
- Environment monitoring limited to features provided by Rackspace.

Solution

- New Relic used to capture and display application performance metrics via custom dashboards.
- Alert policies configured to inform relevant users about potential application failure risks.

Impact

- Application failure rate reduced by 25% through risk mitigation done via proactive monitoring.
- Incident resolution time reduced by more than 30% due to availability of richer application logs.

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