How do I automate change management for DevOps?

Questions addressed:

Page 1:

- How does automating change management on ServiceNow support DevOps?
- How do I automate change management approvals with ServiceNow?

Page 2:

- How can change records be automatically created in ServiceNow?
- How can change requests be automatically approved in ServiceNow?

You can automate change record creation and the change approval process using data you collect via integration to existing continuous integration/continuous delivery (CI/CD) pipelines that your DevOps teams use. This greatly speeds up the overall code release process while maintaining compliance, expediting audits, and minimizing outages.

How do I automate change management approvals with ServiceNow?

1 **Review the current change process.**

Review your current change record creation and approval process, including data inputs and decision logic.

Review existing inputs and logic for potential improvements and update as needed to meet business requirements.

2 **Automate risk assessment.**

Improve the efficiency of your change management processes by expediting change risk categorization. By doing this, you can expedite more standard, lower-risk changes when you automate change approvals. Complete the following prerequisite steps to prepare to automate risk assessment:

1) Define the criteria you want to use for risk assessment going forward. We recommend:
   - **Functionality –** Does the code you're releasing perform the desired function. For example, are unit and regression tests passing at an acceptable level, etc.?
   - **Compliance –** Is the code in compliance with corporate security guidelines. For example, are security scans passing with no high-risk issues, etc.?
   - **Business impact –** What services are impacted? Are there any conflicts with blackout periods, maintenance windows, etc.?
2) Identify the following for each criteria:
   - What information you need to capture from users submitting change requests
   - What thresholds are required to pass defined criteria
   - How you will weigh different criteria
3) Review all risk assessment factors (defined above) with the change management process owner and change advisory board (CAB) for approval before you implement them.
4) Use Change Management – Risk assessment and/or the Activate Best Practice – Change Risk Calculator plugin to automatically calculate the risk of changes using your defined risk criteria.

Related resource: Automating incident and change management (playbook, page 12)

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How do I automate change management for DevOps? (Continued)

How do I automate change management approvals with ServiceNow? (Continued)

3 Automate change record creation.

Identify the tools that provide the data needed to assess criteria defined in Step 2. Implement integrations with those tools to collect data for automated change record creation using the ServiceNow Change Management API.

The Change Management API provides REST APIs that enable third-party, CI/CD pipeline application integration with the ServiceNow® Change Management process. By integrating your applications with the ServiceNow Change Management process, all change requests, regardless of where they're initiated, have a single source of truth and provide a single audit source.

4 Automate change approval.

Change approval policies enable you to set criteria to automatically generate approval actions using decision tables. This Now Platform® feature lets you define the logic for complex decisions dependent on multiple inputs. Complete the following steps to automate change approval:

1) Define three components for approval policies based on your approval logic from Step 1, potentially using data from the tools integrated in Step 3:
   - **Policy inputs –** The variable sources evaluated within a decision, for example, assessed change risk
   - **Decisions –** Records that contain the conditions that determine the approval action to be taken, such as "change request risk is low"
   - **Approval definitions –** The approval action to take when policy input variables match decision evaluation conditions, for example, "if change request risk is low, approve change request"
2) Configure components in change approval policies using conditional logic. Note that while change approval policies use conditional logic, the logic contained in a policy considers all policy inputs before determining an approval action, rather than simply looking at inputs sequentially in a standard *if-then-else* construct.

Related resources:

✓ Automating incident and change management (playbook, page 16)

✓ Applying Change Approval Policies to DevOps

✓ ServiceNow DevOps product

5 Activate the process.

Implement a "gating" two-way integration with a building or orchestration tool (Jenkins, etc.) to stop all code deployments and wait for change record approval in ServiceNow. If a change record is low risk, it will be automatically approved, there will be no wait time, and the code will be deployed instantly. If a change is high risk, the code deploy will be delayed until the change record is manually approved or stopped completely if a change record is rejected.

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