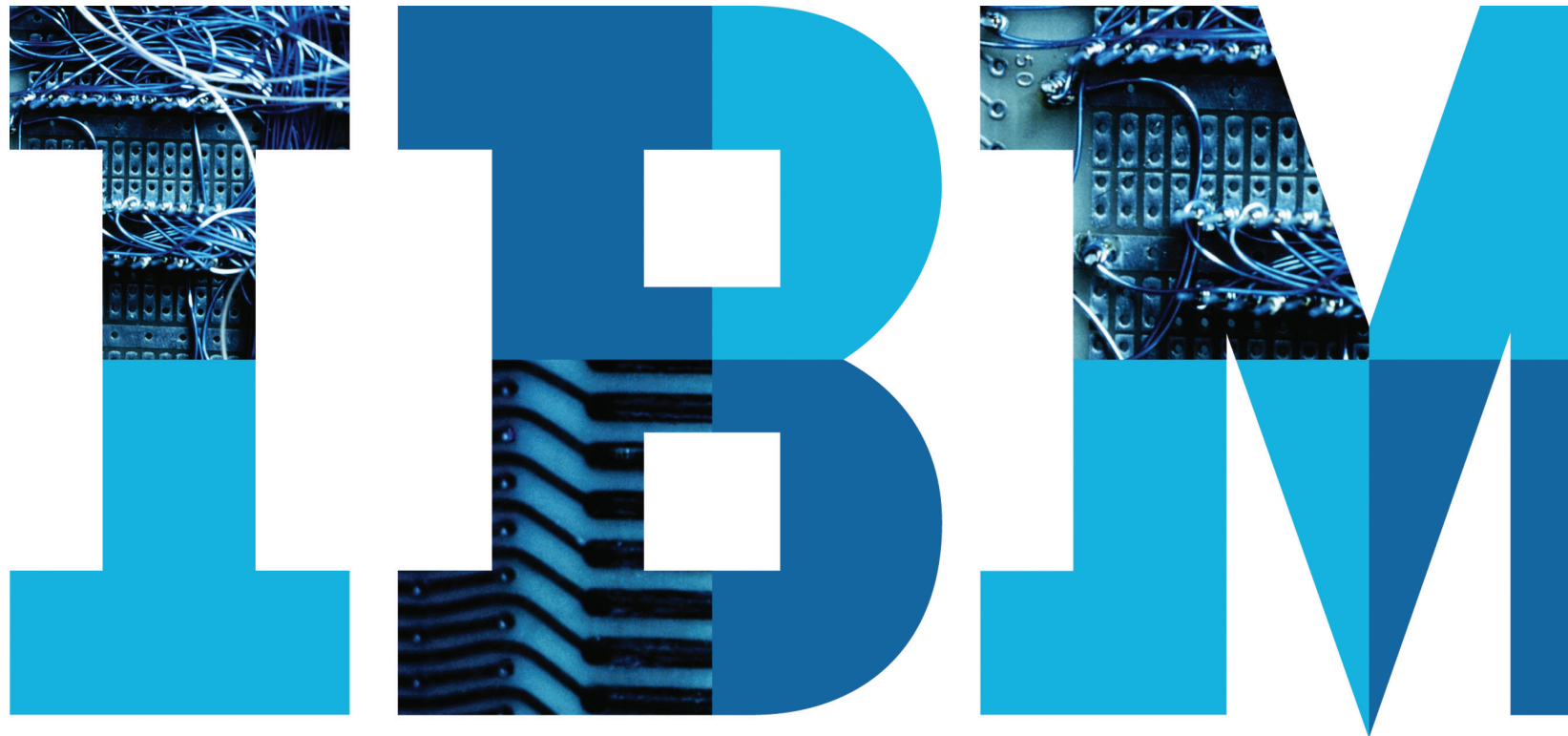


IBM Cloud Resiliency Orchestration

Service engagement guide



1

Service overview

Discover what IBM® Cloud Resiliency Orchestration is and how it helps enterprises manage their disaster recovery (DR) environment performance with a unified and simplified solution.

2

Service deployment

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1. Service overview

Economic losses from disasters are reaching an average of USD 250-to-300 billion each year.¹ In addition to natural disasters, businesses need to be prepared to face growing new threats, such as cyberattacks and malware: Gartner predicts that 'by 2019, despite increasing effectiveness of countermeasures, successful ransomware attacks will double in frequency year over year, up from 2 to 3 million in 2016.'² IBM Cloud Resiliency Orchestration helps enterprises identify the right DR strategy, implement it effectively and stay 'always on' by transitioning from resiliency automation to orchestration.

Cloud Resiliency Orchestration is a unified DR management solution that can deliver DR readiness validation and IT recovery. With this IBM managed service, you can monitor, test and failover your environments from a central dashboard at any time. The dashboard enables you to view and control your complex IT recovery requirements all day every day: you can automate recovery drill execution, reduce dependency on manual work and the potential for human error, improve DR test times, achieve higher overall operational efficiencies and generate detailed compliance and deviation reports. Chief information officers (CIOs) and infrastructure and operations (I&O) professionals can gain more confidence in their organisational DR readiness because they can compare the recovery drill performance to the set recovery point objectives (RPOs) and recovery time objectives

(RTOs) and monitor and manage them in a single dashboard view.

With Cloud Resiliency Orchestration, IT recovery drills are fully automated and can be initiated with one click after you establish your workflows using a simplified, object-oriented editor. The workflow editor is connected to a recovery automation library (RAL) with over 450 industry-standard workflow patterns, which you can 'drag and drop' to build your custom workflows or to extend the pre-packaged recovery actions that help you meet your customer expectations and industry regulation requirements.

Helping HDFC Bank meet DR compliance needs

HDFC Bank, a large banking and financial services company in India, had to comply with a business recovery regulation that required it to run on a DR site for a minimum of one month while continuing to transact. After implementing the resiliency solution, which was provided by Sanovi, an IBM Company, the client was able to recover over 1,500 virtual servers and achieve an application failover time of just 20 minutes.³

Unlike other traditional DR solutions that focus only on the IT infrastructure level, Cloud Resiliency Orchestration elevates resiliency to the business process level: it helps protect the end-to-end (E2E) business process dependencies across applications, data and infrastructure components — and therefore, helps increase availability of your business applications. You can access the necessary high-level or in-depth intelligence regarding RPO, RTO and the overall health of your enterprise IT continuity from a single dashboard.

As more enterprises turn to heterogeneous IT infrastructures — with applications and databases stored in on-premise as well as private, public and hybrid cloud environments that are often difficult to oversee — their DR strategies can become quite cumbersome. These enterprises are realising that traditional approaches to business continuity

such as DR automation are becoming obsolete and are incapable of ensuring the continuous availability their customers expect. Cloud Resiliency Orchestration is designed to fit heterogeneous IT environments and supports the following platforms: Linux, Microsoft Windows, IBM AIX, HP UX, Solaris, VMware, Oracle Exadata, FlexPod and Amazon Web Services.

The solution provides an intelligent workflow, with automated individual actions and awareness of the entire process — so the environment failover can be completed without manual intervention or outdated runbooks. Cloud Resiliency Orchestration helps make your DR environment performance more consistent and predictable while dramatically reducing complexity.

2. Service deployment

Cloud Resiliency Orchestration is available as a managed service or as a software solution that can be managed through an IBM Business Partner. The managed service is deployed by IBM Resiliency Services and consists of the following six steps: assessment, provisioning and activation, monitoring, validation and testing, failover and reporting.

Assessment

IBM initiates the Cloud Resiliency Orchestration service by establishing direct communication between your DR manager and an IBM project manager, who becomes your organisation's contact person for the service. Next, IBM sends its resiliency specialists to evaluate your server environment and connectivity; they review a wide range of questions to assess your IT infrastructure and to help define

the right DR strategy for your business. The infrastructure assessment might include some of the following questions:

- What are your current RTO and RPO? What do you want them to be?
- How are your applications configured?
- What data protection strategy do you use?
- Where are your servers and infrastructure(s) located?

Then, the IBM Resiliency Services specialists develop a detailed picture of each DR component, server and application that will be protected with Cloud Recovery Orchestration. For example, they check what operating system each server uses, whether those operating systems have been modified and whether the server operates

alone or as a part of a cluster. Finally, the IBM Resiliency Services specialists review and validate the objectives of your service, discuss its implementation and delineate roles and responsibilities for both your staff members and the IBM team.

If necessary, IBM consultants can help you prepare your IT environment for provisioning of the orchestration layer: they can provide services such as application dependency analysis, application recovery plan development and other resiliency-related assessments, strategies and plans.

Provisioning and activation

Once the assessment is completed and your environment is orchestration-ready, either you or IBM Resiliency Services can install the IBM Cloud Resiliency Orchestration software and define your resiliency best practices. A crucial step for a successful recovery orchestration is to define all applications and their dependencies by mapping assets and relationships between the production and the DR sites. You can discover relationships within your environment and detect routine replication mechanisms using built-in intelligence with solution signatures. Based on these discovered relationships, you can create workflows to help ensure protection, testing and failover. The workflows provide you with flexibility to set success and failure paths for error handling

and to fork and join steps for parallel execution in an object-oriented workflow editor; it's designed to be as simple as 'dragging and dropping' elements into a workflow field (see Figure 1).

The workflow editor also gives you access to RAL that contains over 450 industry-standard workflow patterns that you can reuse to build your custom DR workflows.

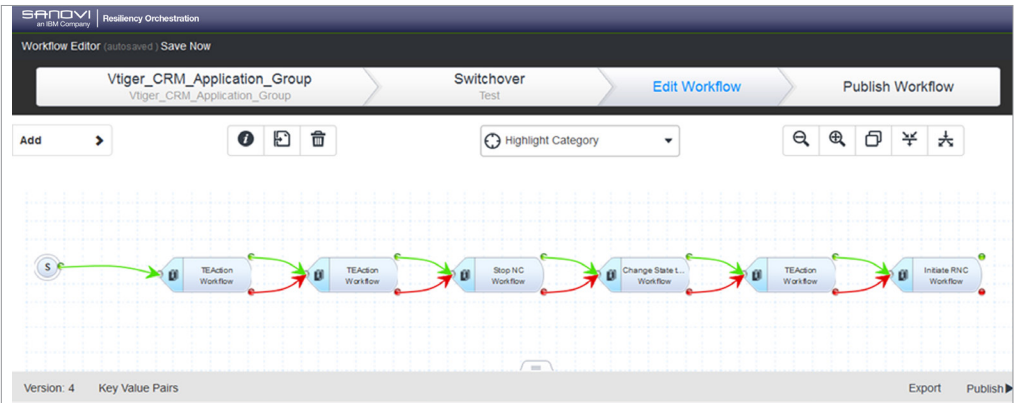


Figure 1: Workflow editor with a 'drag-and-drop' field and a set of recovery steps that reuse some of the RAL patterns

Monitoring

With your DR workflows set, you can define your RPO and RTO thresholds and monitor your DR environment in real time using the dashboard (see Figure 2). The dashboard offers an executive view of the DR readiness of critical applications: you can check the RPO and RTO status in relation to the established thresholds, the data lag, the DR readiness and the time of the last DR drill. You can also detect and track conditions that impair recovery, such as the health of your orchestration server and agents, up and down status of your servers, applications, databases and replication details. The dashboard can be configured to issue notifications and alerts for DR events, which helps you mitigate your DR risks.

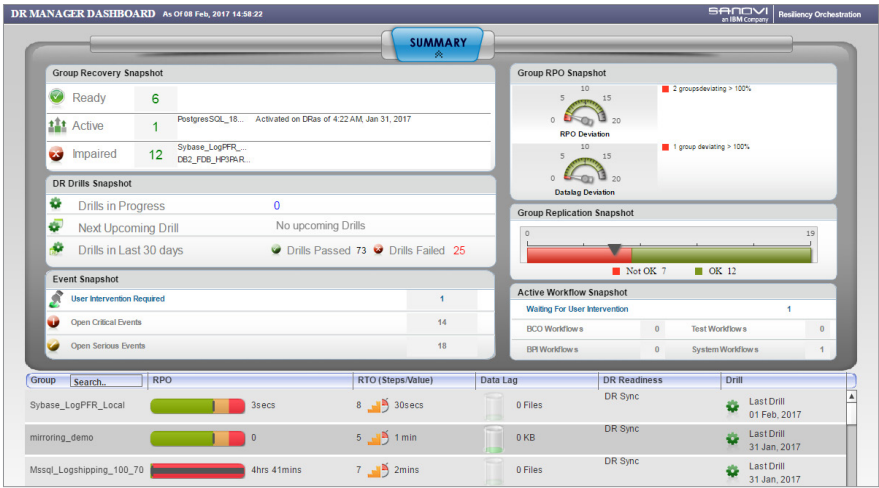


Figure 2: Dashboard provides the summary and detailed views and enables you to scan the snapshots of recovery, DR drills, events, RPO, replication and active workflow or to gain more insights by tracking the status of each application by RPO, data lag, RTO, DR readiness and the time of the last drill.

Validation and testing

The validation manager helps you prevent a recovery failure with its 'pre-flight checks that alert you when changes in applications or databases occur, either on the production or the DR site. You can also execute a workflow dry run to verify the health and hygiene of your test automation. When you are ready to test, use the dashboard to execute either a disruptive or a non-disruptive DR drill that follows an out-of-the-box switchover and switchback workflow. The drills can be performed for a single application, a set of interlinked applications or a complete production site.

Failover

When an outage occurs, you can failover your entire environment, including your applications and their interdependencies, with just one click. And as in the case with performing a drill, you have the flexibility to failover a single application, a set of interlinked applications or a complete production environment. You can also turn to IBM support for Cloud Resiliency Orchestration: it is available all day every day and is based on your subscription.

Reporting

Use the dashboard to retrieve compliance and deviation reports that can offer comprehensive overviews and insights into your DR drill and failover performance.

3. Service delivery

Time frame

Provisioning depends on the complexity of your environment and the level of customisation that is required to achieve the RTO and RPO targets. A typical environment, which consists of 12 applications and is replicated with Oracle Data Guard protection, usually takes a minimum of four weeks to implement without any customisation.

Pricing

The pricing depends on your subscription type: you can choose a fully managed service, which includes service implementation, delivery and support, or software subscription, which includes service implementation only.

IBM resiliency centres

IBM resiliency centres integrate cloud and traditional DR capabilities with support for physical and virtual servers.

IBM delivers services from over 300 resiliency data centres, which are located in 68 countries around the globe, so you can choose to have your Cloud Resiliency Orchestration service running in your home country, outside of it, or both. You can review the locations of IBM resiliency centres on the [GTS Site Maps page](#). These centres are staffed with resiliency specialists who are available around the clock to help clients recover from outages.

Why IBM?

Resiliency orchestration is just the latest innovation in IBM's history of helping clients avoid disruption to the IT environment. With a broad portfolio of services, IBM is an innovator in the field of business and IT resiliency. IBM was named a leader in Disaster Recovery as a Service (DRaaS) in Gartner's 2016 Magic Quadrant⁴ for the second consecutive year. In addition to its recent acquisition of Sanovi Technologies, a software company specialised in hybrid cloud recovery, cloud migration and business continuity and expansion of its broad portfolio of Resiliency Services to include Cloud Resiliency Orchestration, IBM has over 50 years of experience in business continuity and

resiliency, with a proven track record of meeting commitments to clients who have declared a disaster. IBM's continuity and resiliency solutions are fostered by the exceptional research capacity.

IBM can deliver a broad scope of business continuity and DR services—from assessment, consulting and data protection services, to data centre design, consolidation/migration and operations and management services.

IBM Resiliency Services help clients achieve:

- Confidence in their DR strategy based on better visibility and control of their entire DR environment
- Scaling up of resiliency operation, aligned with their hybrid cloud strategy
- Greater simplicity in DR planning, monitoring and testing from a single dashboard
- Savings on capital investment and operational cost due to reduced dependency on manual execution of drills, failover and reporting.

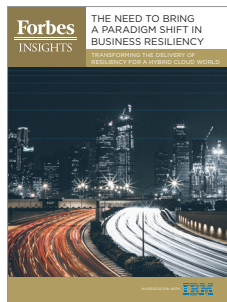
4. Getting started

Learn more about IBM Cloud Resiliency Orchestration

For more information about IBM Cloud Resiliency Orchestration, visit our [website](#).



Watch the 'IBM Cloud Resiliency Orchestration Overview' [video](#) to learn how this service can transform your enterprise resiliency with automation, hybrid environment support and simplified approach to DR management.



Read 'The Need to Bring a Paradigm Shift in Business Resiliency' [white paper](#) to learn how resiliency orchestration enhances automation by using deep insights into the IT infrastructure, dependencies, business processes, regulations and threats to deliver a more contextual and proactive DR solution.

Ready to talk?

IBM Resiliency Services specialists can assist you in building a business case for deploying Cloud Resiliency Orchestration, including identifying targets for the return on investment (ROI) and risk reduction goals.

Call 1-877-426-3287 to speak with an IBM Resiliency Services representative.

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- 1 The United Nations Office for Disaster Risk Reduction (UNISDR), [The human cost of weather related disasters](#), 2015
- 2 Gartner, [Predicts 2017: Business Continuity Management and IT Service Continuity Management](#), 15 November 2016
- 3 Sanovi, [India's world-class bank partners with Sanovi to ensure IT Recovery Readiness](#). The statement is based on Sanovi's analysis of client data. Individual results will vary.
- 4 Gartner, [Magic Quadrant for Disaster Recovery as a Service](#), 16 June 2016

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