

WHITE PAPER

Cordys Cloud Provisioning

Provision. Orchestrate. Innovate.



EXECUTIVE SUMMARY

Today's economic landscape is characterized by extreme competition, demanding customers, commoditization of products and services, and pressure to cut costs. There is an increasing pressure on every organization to do more with less.

In such a demanding and competitive environment, an organization's success depends on its ability to achieve efficiencies through effective management of its business processes. The market share and competitive leadership of the organization depends on the continuous improvements and optimization of its processes. Agility and operational performance are the need of the hour for today's businesses.

In this context, Cordys offers Cloud Provisioning, out-of-the-box Business Activity Monitoring (BAM) and support for partners (ISVs and sales channels), and service providers.

Cordys Cloud Provisioning enables an organisation to become a Cloud Service Provider (CSP). It allows them

to offer value added services based on their existing capabilities in the form of an application. This allows a Cloud Service Provider to offer new services themselves or via their ISV channel.

CLOUD CHALLENGES

According to the TM Forum (the leading industry association serving the information, communications, and entertainment industries) the big barriers to operate a successful cloud are:

- High operational costs
- High churn
- Low service innovation

Currently, service providers have high operating costs because they lack process automation and end-to-end process ownership. The main reason is that the current application landscape consists of disjointed and inadequate systems that are not properly integrated.

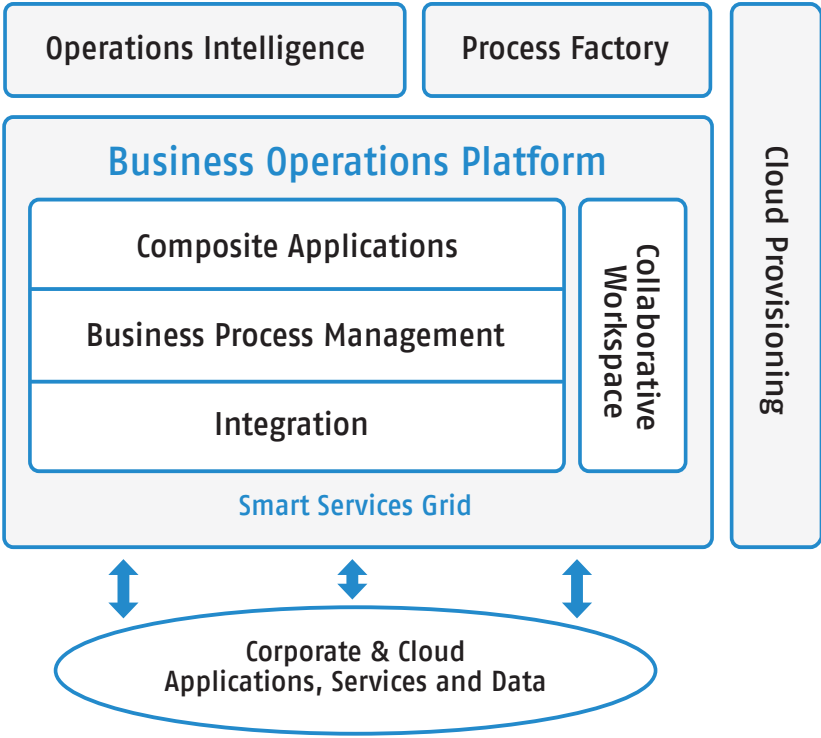


Diagram 1: Single Product Stack

Cordys Cloud Provisioning is a workflow-enabled provisioning framework, which allows you to create, automatically provision and orchestrate "virtual bundles" of on-premise and cloud based capabilities that make up a new product, value added service or application, despite that these capabilities come from many providers.

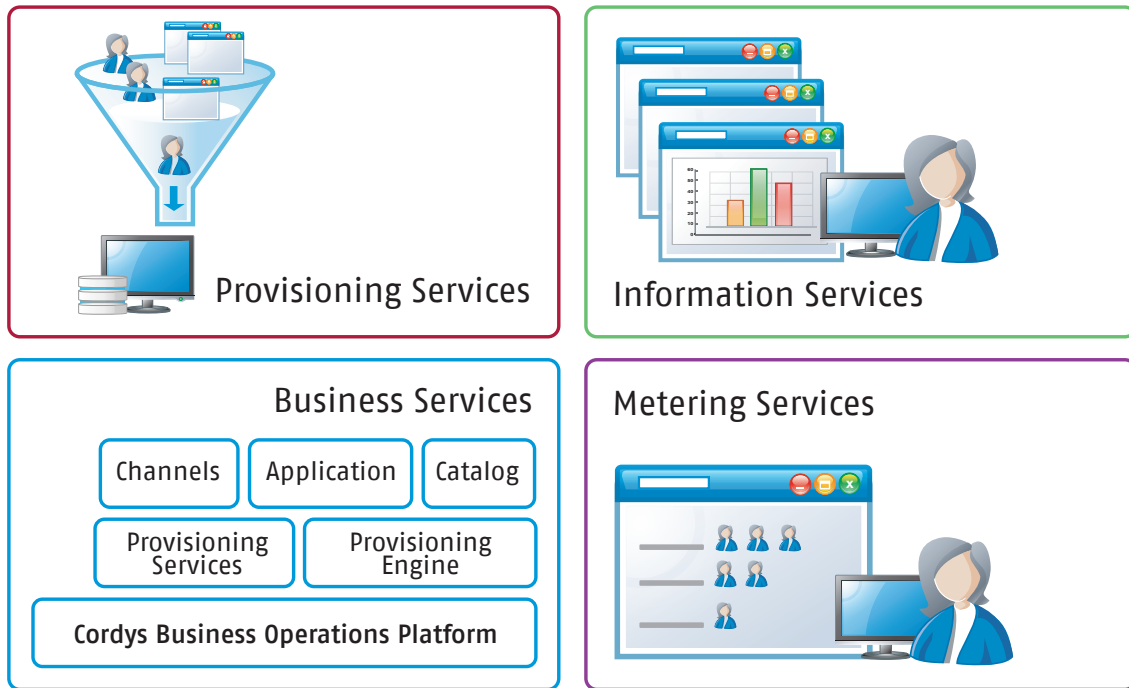


Diagram 2: Cordys Cloud Provisioning General Overview

High churn is caused by poor customer service since the current 'Stovepipe' systems and inaccurate customer information does not provide the service provider with the right information on the right time.

Low service innovation is the result of several issues encountered by service providers. These include: long product launch cycles because of inflexible and disjointed business processes, fragmented and departmental silos that do not cooperate efficiently, and 'hardwired' and inflexible systems.

BUSINESS CASE

Cordys addresses these challenges by providing a Workflow-enabled provisioning framework that facilitates end-to-end process integration and self service. This creates the option for the service provider to act only on exceptions and thus lower their operating costs. The orchestration capabilities of Cordys help with horizontal integrations. Cordys Cloud Provisioning allows service providers to create, automatically provision and orchestrate "virtual bundles" of on-premise and cloud based capabilities that make up a new product, value added service or application despite that these capabilities come from many providers.

Cordys offers out-of-the-box Business Activity Monitoring (BAM) that measures processes and enables the service provider to increase the quality of service that, in turn, leads to increased customer satisfaction and reduced churn.

Cordys helps increase the service innovation with the Cordys Process Factory as a cloud based-application development platform that enables any organization to become an Independent Software Vendor (ISV). They can develop and sell Mashup Applications (MashApps) through a marketplace. For more complex applications, Cordys offers its Business

Operations Platform that help ISVs to create quickly new services. Both Business Operations Platform and the Cordys Process Factory help increase the number and quality of applications or services offered with enhanced service innovation.

No cloud is successful without a sound partner program. Cordys offers support for partners (ISVs and sales channels) to be able to create a self-containing and growing ecosystem. ISVs can use Cordys Process Factory to quickly create new applications and the Business Operations Platform offers an efficient development environment for building complex applications.

INTRODUCTION TO CORDYS CLOUD PROVISIONING

Cordys offers a single integrated stack as shown in Diagram 1. Cordys Cloud Provisioning complements the Business Operations Platform with automated provisioning and metering of applications for the cloud (see Diagram 2). In principle, Cloud Provisioning can be characterized by the four capabilities it brings to the Cordys platform:

- **Provisioning services** take care of the delivery of services to customers.
- **Informational services** provide multiple views on the allocated resources and processes per tenant, per channel, and overall.
- **Business services** provide commercial value to the SaaS and PaaS providers by adding SaaS-oriented business functions such as Catalog, Sales Channels, Application and Application Specifications.
- **Metering services** provide insight on the usage of applications.

Provisioning Services

Cloud Provisioning caters to provisioning needs by making applications available to tenants and users, also called application subscriptions. This is possible for both Cordys and non-Cordys applications. With provisioning, a user is able to log in and use the application with the proper authorization.

Informational Services

Cloud Provisioning provisions application subscriptions and stores the state of those subscriptions in its inventory. Therefore, Cloud Provisioning also acts as a source of information and knows the current state of a subscription where applicable. It offers User Interfaces (UIs) and Application Programming Interfaces (APIs) to view this information.

Business Services

When operating a cloud, it is essential to use a framework that helps service providers quickly introduce new applications and make them available to tenants and users. Support for multiple sales channels is the key to drive and grow the ecosystem. Sales channels have their own Administration Dashboards where they can see their subset of tenants and provide support to customers. Also, each channel will have its own catalog of applications for its line of business.

Metering Services

This Cloud of computing resources will not only effect the number of data centers and the number of people employed in them – it will have profound implications for the organization. On one level the cloud will be a huge collection of electronic services based on standards. Many web-based services are built to be integrated into existing business processes.

PROVISIONING PROCESS

Provisioning is a complex process that is best described using an example (see Diagram 3):

- A new tenant visits the website and selects an application from the catalog. After payment, the catalog system sends a provisioning request to Cloud Provisioning using a web service.
- Based on the information in this request, the following objects are stored:
 - a. An order
 - b. A tenant and address
 - c. An organization (workspace)
 - d. One or more tenant agreements
 - e. A user
 - f. One or more user subscriptions
 - g. Per user subscriptions, the roles that are assigned to the user.
- Subscription flows run in the newly created Cordys Organization to execute activities related to the provisioning of the application, like installing user data.

- When a non-Cordys application is provisioned, the subscription flows run in Cloud Provisioning and use external services to provision the application.

The robust Cloud Provisioning engine can deal with all kind of problems that might occur during provisioning like network failures. Cloud Provisioning offers a Provisioning Engine Monitor that has the capabilities to redo or skip activities, in case of errors.

APPLICATION

An application is a “virtual bundle” of on-premise and cloud based capabilities that make up a new product or value added service. Cordys applications can be built with Cordys Process Factory or using the Business Operations Platform. After testing and acceptance, an application is moved to the production environment. Before tenants start using the application, the application must be registered in Cloud Provisioning with the following information:

- The information about the application (e.g. description, name of the vendor, version)
- The roles to which users can subscribe. For example, application administrator, developer, normal user, and power user

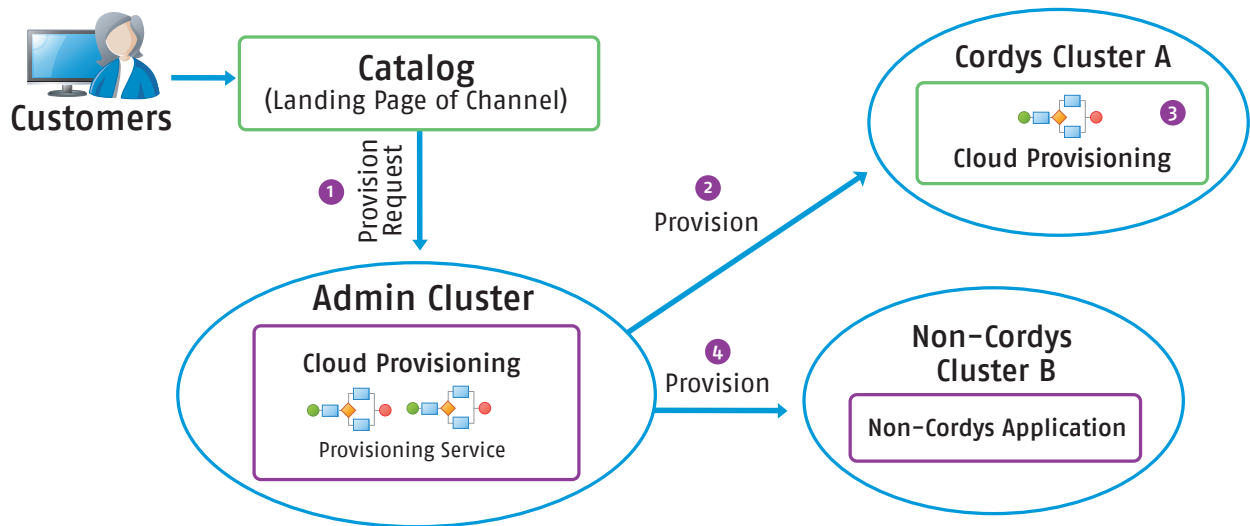


Diagram 3: Provisioning a Complex Process with Cloud Provisioning

- User Interfaces to be used during the subscription process. These UIs can be used during the subscription process to enter information needed for the subscription process
- Application-specific properties that the ISV can use during the subscription and also during the usage of the application

With this information in the Cloud Provisioning inventory, tenants can request a subscription to this application. The application information is now available for provisioning. However, the application must also be physically available on the system where the tenant can start using it. To make the application available:

- The platform administrator must install the application on the target system

- After the application is installed, the platform administrator must update the Cloud Provisioning inventory to indicate that the application is available on the system. Provisioning will wait until the application is deployed.

If a user subscribes to an application and requests for a given role, then the user's account in his organization (the organizational user) will get a reference to the role in the application.

In the same way, it is also possible to define non-Cordys applications or services. Provisioning flows and UIs, called during the actual provisioning and execute activities needed to make the application available, can also be specified in this process.

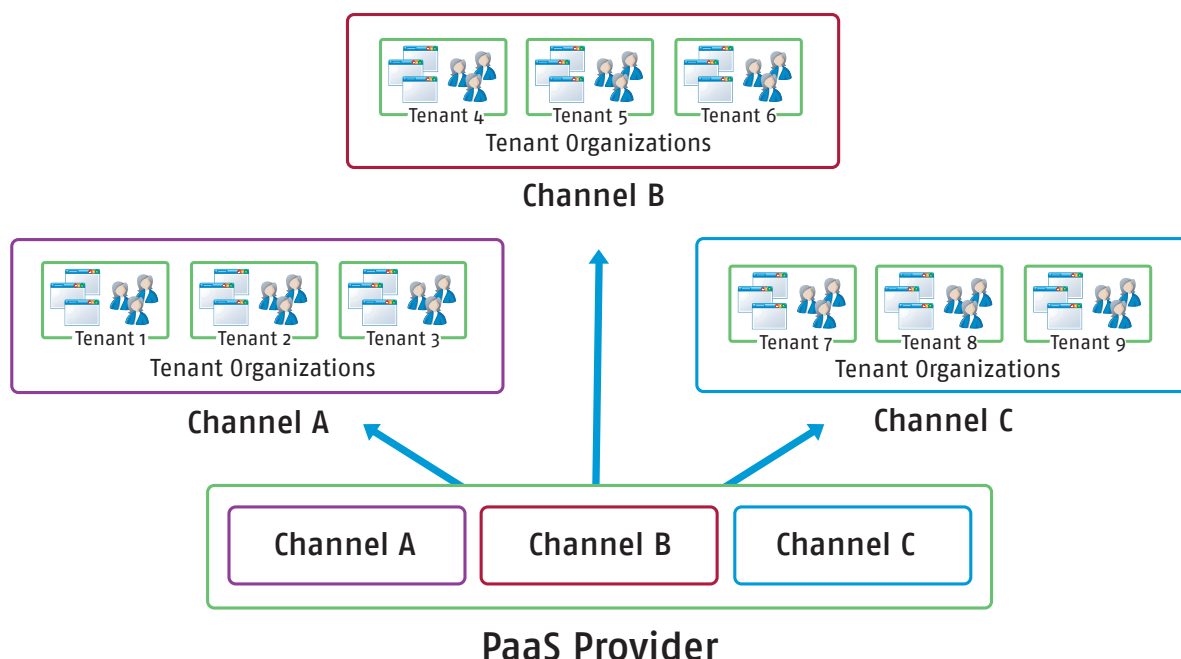


Diagram 4: Provisioning Framework

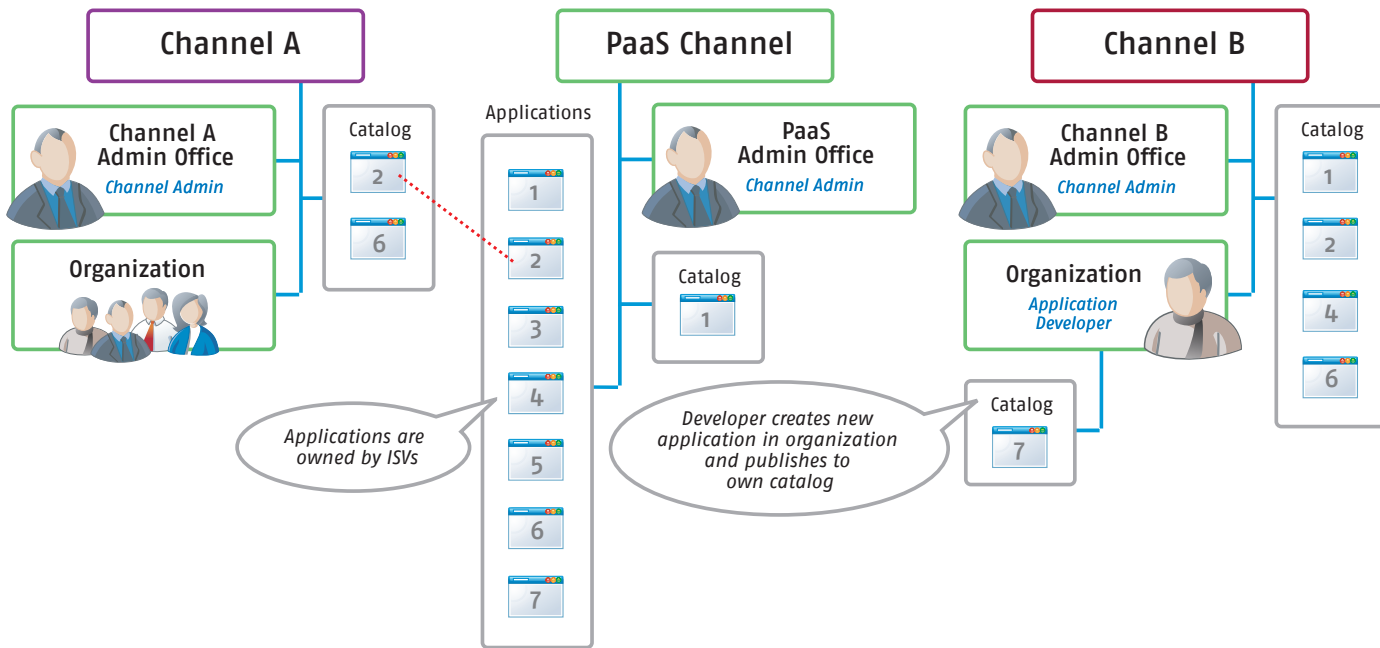


Diagram 5: Different Catalogs of Applications in Cordys Cloud Provisioning

DELEGATION OF AUTHORITY OR SELF SERVICE

Cordys Cloud Provisioning provides self service capabilities to end users, Tenant Administrators, and SaaS providers to lower the burden of operating a cloud for the PaaS Provider. Also, the Tenant Administrator can provide self service to their users, so end users can request access for a certain application. The request is processed after approval by the Tenant Administrator. Cordys Cloud Provisioning offers Inbox facility where the requests for approval can be examined. This Inbox acts as a worklist where multiple administrators can divide the work.

CATALOG

In Cloud Provisioning, a tenant can subscribe to an application by selecting it in a catalog of applications provided by a (sales) channel. All applications are managed by the service provider (the PaaS provider) and can be offered via different sales channels, where they can be procured, subscribed to, and consumed by the tenants (see Diagram 4).

Channel catalogs do not contain the applications because an application can belong to multiple channels. They refer to the application definition that the PaaS Administrator owns. The Channel Catalog provides information on the application capabilities, cost, and subscription conditions. Applications can be owned by the ISVs or developers can also create new applications in their tenant and publish them to their own catalog (see Diagram 5).

METERING SERVICES

The Metering Service provides usage tracking of applications and services. Information on the usage of applications can be used by PaaS and SaaS providers for billing. It provides information to the ISV on how its application is being used and tells the tenant how many of its employees are using a specific application or service. The Metering Service doesn't instrument the applications to extract usage information. It's up to the ISV to implement the actual measuring of the usage and calling the Metering API to register the usage. Non-Cordys applications can also call the Metering API, although it might be necessary to map the external user to a combination of Cordys organization and user.

The unit in which usage is expressed in the Metering service is called 'transaction.' A transaction consists of an identifier of the application, the (application specific) transaction type, the user, and the organization, the context in which the application is used, a time stamp, and a usage quantity. Applications can define multiple transaction types to differentiate between different events that need to be measured. For example, an online shopping application can differentiate between viewing and sale/purchase of products.

With all the usage information available in the Metering service, it's possible for an administrator to create different types of reports and views based on their role. Access to all information is role-based. It is possible to summarize per year, month, week, or day and sort per type, channel, organization, application, or a combination. The transaction totals have to be actualized via a manual action that'll start processing the transactions that still need to be included into the totals.

In Diagram 6, the main functions of the Metering service are depicted:

1. Log transactions by applications and services
2. Process the transactions into totals per channel, organization, and application by the Metering Calculation Service Container
3. View transactions and totals
4. Export totals in CSV format
5. Archive transactions

The transactions or the totals can be exported in a CSV (Comma Separated Value) format. This allows easy integration with Metering Service for processing or analyzing

of application usage. After exporting, the files can be downloaded and used, for instance, with a spreadsheet. Transactions that are no longer needed can be archived using standard database tools. Archives can also be restored to the transaction tables.

CONCLUSION

Cloud provisioning helps service providers cut operation costs by providing a workflow enabled provisioning framework that facilitates end-to-end process integration and self service to offer a new product, value added service or application to the market. This creates the option for operators to act only on exceptions and thus lower the costs to operate a 'Cloud'.

Cordys Cloud Provisioning: Orchestrate, Provision, Manage

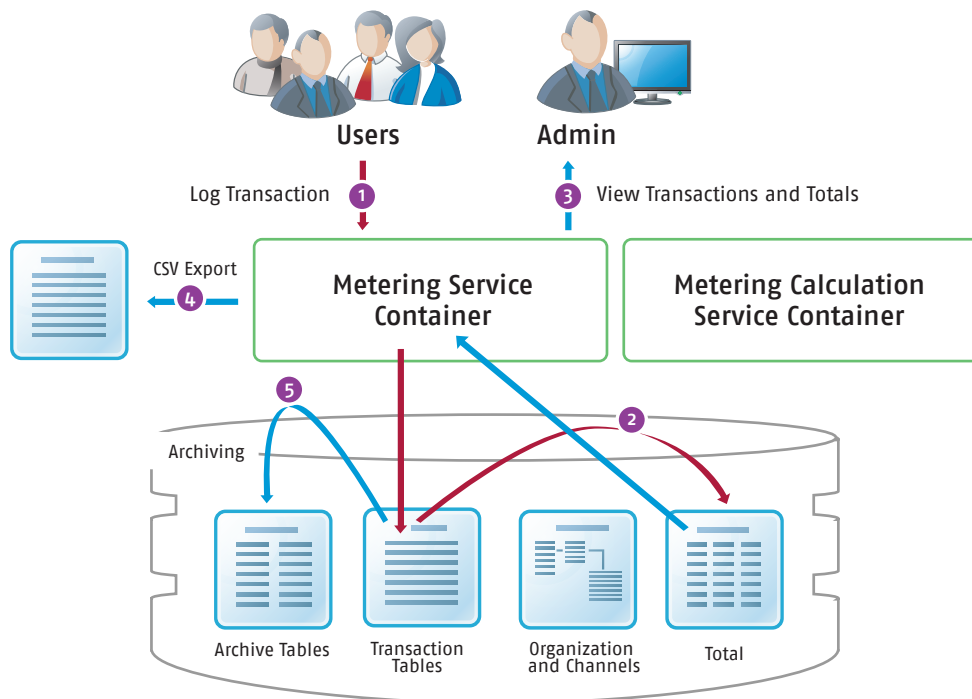


Diagram 6: Main functions of the Metering service



GET STARTED

Learn more about Cloud Provisioning by visiting this link
www.cordys.com/cloudprovisioning

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