

Rapid mobile data service creation and monetization



Data experience solution overview

Data plans are becoming increasingly complicated as data is shared across devices and users, service bundles span different network types and service models, and multiple integration points are required across a range of network and IT systems. For mobile operators, this presents three key challenges: how to create and adapt innovative data services quickly to address competitive pressures and customer demands; how to manage the growing provisioning complexity that comes with increased interactions between users, applications, networks and devices; and how to accelerate the monetization of data services.

The Amdocs Data Experience Solution is the industry's first integrated and productized policy and charging solution designed exclusively to enable rapid mobile data service creation and monetization across a broad set of functions. The Data Experience Solution is a pre-integrated solution that features an integrated policy and charging engine, product catalog, subscriber authentication and management, and Diameter routing. The integrated policy and charging engine is the cornerstone of the Amdocs Data Experience Solution, bringing together Amdocs' extensive and proven policy control and charging technologies to provide real-time usage metering and control for advanced data services. It features 3GPP compliant standard interfaces to enable ease of insertion into 3G and 4G mobile packet core deployments.

Data experience solution – out-of-the box market offers

- Tiered Services
- Data Pass
- Bill Shock Prevention
- Pay-Per-Use
- Wi-Fi Offload
- Shared Wallet
- Upsell
- LTE Access

The Data Experience Solution includes eight pre-configured market offers that are available out-of-the-box to accelerate new service introduction with minimal customization. The market offers represent a popular mobile data services – including Tiered Services, Data Pass, Bill Shock Prevention, Pay-Per-Use, Wi-Fi Offload, Shared Wallet, Upsell, and LTE Access – that help lay the foundation for mobile service innovation. Because the market offers are highly configurable, operators can get new services to market quickly and accelerate the process of data service monetization.



Why Amdocs data experience solution?

- **Unifies the subscriber's data experience** by managing data usage and monetary balance through tight integration of policy and charging capabilities
- **Accelerates new service introduction and monetization** with out-of-the-box market offers that can be customized with minimal configuration and deployed rapidly
- **Simplifies deployment with legacy network and IT systems** by providing a pre-integrated software and hardware system, with support for standard network interfaces and BSS interfaces
- **Allows operators to redefine the mobile data experience** with dynamic, on-demand services when customers need them most, improving customer satisfaction
- **Ensures a superior data experience for subscribers** by providing them with the broadest possible choice of services and options, including usage transparency, dynamic service upgrades, temporary services, choice of service models and charging options
- **Provides a single provisioning feed** for a single-subscriber view across policy and online charging, which simplifies the provisioning process while reducing costs
- **Enables introduction of real-time policy and charging control** in a turnkey offering for fast deployment
- **4G LTE-ready** — features proven 3GPP standards support for rapid and seamless migration to LTE

Out-of-the-box market offers

The Data Experience Solution includes a series of pre-integrated market offers that enable mobile operators to fast-track the deployment of data services. These market offers are preconfigured out-of-the-box for rapid deployment and integration with existing mobile packet core, IMS networks and IT systems. The following table summarizes the Data Experience Solution market offers

MARKET OFFER	USE CASE DESCRIPTION
Tiered Services	<p>Enables services based on specific quality of service (QoS), volume, time limit and content, such as:</p> <ul style="list-style-type: none">• Social networking plans that zero-rate access to selected social applications• Happy hour plans that zero-rate data during low usage periods• Plans with differential charging based on local/roaming and overage
Data Pass	<ul style="list-style-type: none">• Allows users to access data services based on a volume limit, or for a specific period of time• Requires no existing contract with the user• Augments existing monthly plans with add-on features (data roaming pass, for example)• Enables speed bumps for managing heavy users• Allows balance top-ups using a captive portal
Bill Shock Prevention	<ul style="list-style-type: none">• Gives users options for opting-in or out of bill shock prevention measures• Tracks data usage based on appropriate roaming tariffs• Monitors data usage based on monetary values as pre-defined by the operator or the user• When a usage limit is reached, the user is notified and may be blocked or redirected to a captive portal• Allows volume- and time-based services to be shared among multiple devices or users
Pay-Per-Use	<ul style="list-style-type: none">• Enables operators to offer data services to voice subscribers who do not have a recurring data plan• No monthly service contracts are necessary and users are charged for exact amount of data used• User data access rates can vary based on time of day and content type
Wi-Fi Offload	<ul style="list-style-type: none">• Enables operators to provide data access on 3G, 4G and Wi-Fi• Provides common QoS, content access, and user experience over operator-controlled Wi-Fi network• Supports SIM-based access authentication for transparent subscriber access
Shared Wallet	<ul style="list-style-type: none">• Allows volume- and time-based services to be shared among multiple devices or users
Upsell	<ul style="list-style-type: none">• Provides infrastructure to upsell advanced plans or one-time services to increase ARPU and improve the customer experience• Exposes APIs that can be used for speed boosts, daily or weekly roaming passes, zero-rated service promotions, etc.
LTE Access	<ul style="list-style-type: none">• Enables high-bandwidth services for LTE networks and provides options for restricting bandwidth in 3G networks• Provides support for best-effort and guaranteed QoS for specific application traffic, and enables differentiated charging• Enables on-demand session setup triggered by the IMS Rx interface

Solution architecture

The Data Experience Solution provides a cohesive, end-to-end architecture for the rapid delivery and monetization of mobile data services. The solution combines real-time policy, online charging, rating and product definition capabilities, and integrates with the policy enforcement points in the mobile packet core network using standards-based interfaces.

The Data Experience Solution supports real-time metering and balance management functions using an integrated policy and charging engine. The tight integration of policy control and charging allows operators to trigger specific charging actions when data usage thresholds are met, such as applying different charging rules when a subscriber reaches the monthly data limit defined by the plan. It also integrates with provisioning, management and customer care systems using reusable connectors.

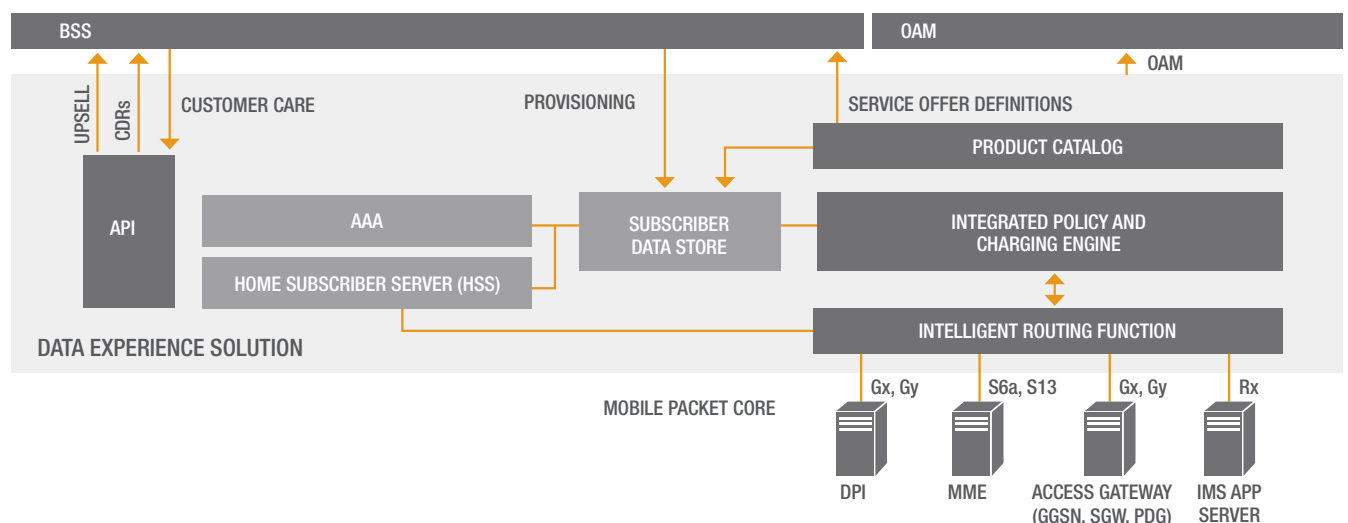
Solution highlights

- Combines real-time usage metering and balance management to support service model innovation
- Pre-integrated system features out-of-the-box market offers deployable rapidly for critical time to market advantage
- Unifies service-realization across network and IT domains — not just another policy and charging system
- Common product catalog — leverage existing customer hierarchy and service/pricing plan data for consistency and accuracy
- Offers key IT and network interface support

Figure 1 shows the functional components and interfaces of the solution, which include:

- Integrated Policy and Charging Engine
- Product Catalog
- Intelligent Routing Function
- Home Subscriber Server
- Authentication, Authorization and Accounting

FIGURE 1: DATA EXPERIENCE SOLUTION ARCHITECTURE



Data experience solution components

Integrated policy and charging engine

The cornerstone of the Data Experience Solution is an integrated policy and charging engine that performs real-time policy control and charging functions, providing end-to-end visibility and control over both subscriber monetary balance and usage.

The integrated policy and charging engine acts as a Third Generation Partnership Project (3GPP)-compliant Policy and Charging Rules Function (PCRF), providing real-time usage metering and control to support advanced data services, such as Tiered Services, Upsell and Data Pass. It has the flexibility to provide a range of real-time subscriber controls in the network, including redirecting subscribers, managing quality of service changes, optimizing high-bandwidth traffic, and enforcing usage quotas. The Data Experience Solution can be rapidly deployed with many different types of policy enforcement points – such as access gateways, DPIs, and content optimization solutions – depending on the use cases to be supported.

This component also provides real-time charging capabilities, including rating and monetary balance management. It can process and charge for any type of event, regardless of network or payment method, real-time or batch, delivering convergence across services and lines of business. Amdocs' charging technology utilizes several patent-pending innovations in real-time that deliver enhanced performance, along with significant reductions in hardware and software costs.

The combined policy and charging capabilities of the Data Experience Solution can be used to support an extensive set of use cases for both network optimization and service enablement.

Product Catalog

The Product Catalog simplifies the offer definition process for the Data Experience Solution by providing a graphical user interface application for operators to define products, services, offerings and all business rules governing policy and charging for advanced data services. It also supports the bundling of data plans across services and payment channels, and provides tools for Product Managers to rapidly define target market offers.

Intelligent Routing Function

The Intelligent Routing Function provides a single Diameter interface to the 3G and 4G packet core network. When the Data Experience Solution sends a real-time policy or charging control to the network, this component acts as the common Diameter interface to all devices in the network and provides routing and load balancing capabilities. The Intelligent Routing Function reduces signalling traffic in the network and improves scalability.

Home Subscriber Server

The Home Subscriber Server is an optional component of the Data Experience Solution that provides access for the LTE Evolved Packet Core and supports authentication, authorization and mobility management functions. The HSS is required to support the LTE services market offer. This component can also be used to support service authorization in the IP Multimedia Subsystem (IMS).

Authentication, authorization and accounting

Within the Data Experience Solution, this optional component provides authentication support for the Wi-Fi Offload market offer so that subscribers can move seamlessly from the 3G or 4G network to the Wi-Fi network without having to enter additional login credentials.



Features and Benefits

Out-of-the-box market offers

Supports pre-integrated, out-of-the-box market offers that help mobile operators fast-track the launch of new revenue-generating services. Each market offer includes the required provisioning flows, business logic, integration of relevant functional components and use cases that provide configuration options for service customization.

Combined data metering and balance management

Supports both real-time metering and balance management functions in a single system. The tight integration of policy control and charging allows operators to trigger specific charging actions when data usage thresholds are met, such as applying different charging rules when a subscriber reaches the monthly data limit defined by the plan.

Unified product catalog

Includes a single, unified product catalog for modeling service characteristics, including monetary balances, rating information, time and volume limits, usage thresholds and differential QoS and charging for a given data plan. These definitions are pushed to policy and charging components to provide a coherent end-to-end view of each market offer.

Centralized business rules definition

Provides the ability to centrally define sophisticated business rules governing service behavior across the policy and charging components of the Data Experience Solution. The Product Catalog features a graphical user interface that simplifies service definition and enables faster time to market for new services.

Single customer care interface

Includes a single customer care interface, which provides a consolidated view of the subscriber, including monetary balance, data usage, QoS, throttling state, active access passes, service top-ups and other features activated in addition to the rate plan.

Multi-vendor enforcement point support

Enables policy rules to be executed on many different enforcement points from multiple vendors, including access gateways, DPIs, content optimization servers and the subscriber device. This allows operators to apply policy rules throughout the network and support the requirements of multi-vendor networks.

Single diameter interface

Provides a single Diameter interface for policy and charging to the network for rapid insertion and simplifies and accelerates testing and deployment.

Subscriber context awareness

Enables operators to apply intelligent controls based on real-time contextual information about the network, the subscriber and the application, such as service plan entitlements, roaming status, network congestion and traffic type.

Dynamic mid-session modifications

Provides granular control over bandwidth usage and enables modifications to be initiated by subscribers or customer service personnel. Since the Policy and Charging Rules Function can manage data usage in real time on a per-session and per-subscriber basis, it minimizes costs associated with non-real-time analysis of subscriber usage and provisioning of usage limits, and reduces customer care calls.

Subscriber transparency

Provides real-time subscriber notifications via SMS, email, or redirection to a customer portal. Notifications are triggered by real-time events, such as exceeding a usage threshold for a specific application, roaming to another network, or qualifying for a customer loyalty program. Improved transparency helps reduce operating costs and increase subscriber satisfaction.



Deployment configurations

The Data Experience Solution is offered as a turnkey solution that includes hardware, software and services for installation and configuration. The solution runs on the Linux operating system and IBM blade server hardware. The performance of the Data Experience Solution is certified on IBM BladeCenter HS22 blades.

All solution components are supplied, installed, configured, and tested by Amdocs. These components include hardware (racks, chassis, blades and disk systems), software (operating system, middleware, application software and database) and network connectivity. The solution is sized based on consultation with the operator's Network Operations, Design and IT organizations.

amdocs

embrace challenge e^xperience success