amdocs **billing**

Billing 6.0
Overview

amdocs

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Contents

1. INTRODUCTION

Billing is one of the main components of Amdocs Enabler. Enabler provides support for all services through its components: Product Catalog, Acquisition & Formatting (A&F), Rating, and Billing. Enabler also includes a customer database to support these activities.
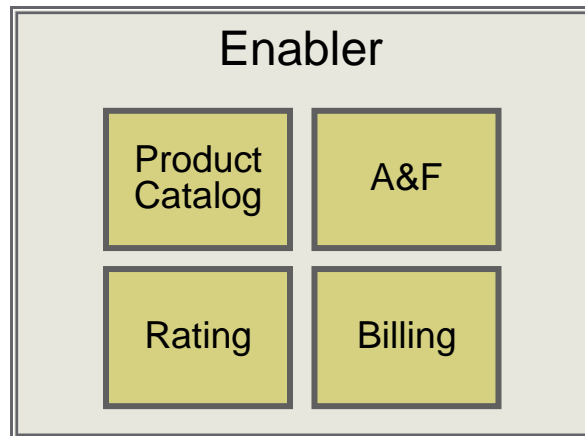
Figure 1-1: Four Components of Amdocs Enabler

The Amdocs Billing component provides the main communications channel between the Communications Service Provider (CSP) and the customer via a periodic billing document.

Amdocs Billing addresses the following challenges:

- Providing a convergent bill for next-generation voice, data, content, and commerce services

- Including prepaid and postpaid services in a single convergent bill

- Performing charge and event distribution to support a split bill

- Enabling flexible definition of recurring charge (RC) and one-time charge (OC) rates and discounts

- Supporting flexible cycle definition

- Supporting both scheduled and on-demand bills

- Supporting multi-currency

- Providing application programming interfaces (APIs) for interaction with other Amdocs components and third-party systems

Scope of this Document

This document presents an overview of Amdocs Billing. It describes the main Billing functions and provides an overview of Billing interfaces.

Billing Highlights

The following sections describe some of the main features of Amdocs Billing.

Billing Document

Amdocs Billing provides the customer with accurate and detailed billing information, which together with additional information is presented in a format that meets the customer's requirements. Amdocs Billing generates a convergent bill that consolidates charges for various subscriptions, lines of business, products, and prepaid/postpaid service combinations, thereby enabling cross-bundling.

Billing documents are generated according to the billing arrangement agreed upon with each customer during the customer's initiation. A customer can request one or more billing documents generated for the relevant services, wherein each billing document is represented by a billing arrangement.

A single billing document can accumulate charges for multiple subscribers and lines of business. Conversely, services related to a single subscriber can be charged on several billing documents; in other words, they are distributed among different billing arrangements belonging to the same customer or to different customers. The customers can belong to the same cycle or to different cycles. This distribution mechanism enables cross-billing among accounts and customers. One or more billing arrangements can be associated with a single Accounts Receivable (AR) account representing the customer balance.

Amdocs Billing compiles, generates, and summarizes all the elements that appear on the consolidated billing document. These include the following:

- Recurring charges, event charges, one-time charges, credits, and discounts for all types of services based on the customer offers.

- Flat or performance-based discount plans that are applied according to the customer's position in the customer hierarchy such as subscriber-level, business unit-level, account-level, and so on.

- Product-specific tax calculations based on the applicable rules and regulations, allowing for customer and service-level exemptions. Amdocs Billing also supports the use of external tax calculation packages.

- Various charges from external sources (such as content providers and e-commerce), enabling full consolidation and discount bundling.

Depending on customer preferences or legal requirements, Amdocs Billing can periodically (monthly, weekly, or any multiple thereof) generate either an invoice that comprises the new charges or a bill that includes the past-due amount and account statement information, as well as the new charges. The total amount due for payment is calculated accordingly and presented on the billing document.

Final and Revised Final Bills

Amdocs Billing supports the production of a final bill following the cancellation of the relevant services and subscriptions, as well as a revised

final bill, produced whenever any financial activity follows the issuance of a final bill.

Bill Validation

Amdocs Billing includes powerful tools that validate the bill calculation results prior to actual bill production. This enables the reversal and repetition of the calculation process for a full or partial population. Confirmation of the bill cycle results (either partial or complete) by the auditor initiates the distribution of the relevant billing documents and affects the financial systems.

Billing Output

Amdocs Billing's principal output is a set of extract files containing all the data included in the billing document sent to the customer. These files are transferred to the CSP's document production facility, which formats the billing documents for printing or distribution via other media (e.g., email), as agreed upon in the billing arrangement.

Amdocs Billing also provides printing categories that enable separating some billing documents from the regular mailing stream. The following are some examples of ways this mechanism can be used:

- Redirect – Once the billing document has been produced by the bill printing utility, it can be sent to a target defined in the billing tables instead of directly to the customer. This target can be a printer, a customer service representative (CSR), a CSR's email address, or other destination. This functionality is used mainly when there is a need to check the billing document before sending it to the customer.

- International – Some billing documents have international addresses and cannot be sent through the print shop's regular mailing stream. These bills are separated from the regular mail flow and handled in a special manner.

- Overweight bills – Overweight billing documents have special postage requirements and cannot be inserted into regular envelopes. The overweight documents are removed from the regular mailing stream and handled separately.

Access to Billing Information

Amdocs Billing provides the CSR with billing-related information by responding to online queries and issuing extensive reports. Amdocs Billing also provides a set of APIs, which can be used by external applications for viewing or updating billing information.

Additional Features

In addition to the calculation and extraction of billing documents, Amdocs Billing has many other important features.

Support for Customer Service

Amdocs Billing supports online queries and billing-related data changes:

Online Queries

Billing data is kept as ready for production as possible. This enables CSRs to perform online queries.

Billing-Related Data Changes

CSRs handle customer requests for changes in the billing-related data. After the change has been made, Amdocs Billing ensures that data integrity is maintained, that all aspects of the change are implemented, and that each impact of the change is identified and addressed.

Billing APIs

The Amdocs Billing component provides a set of APIs that can be used by external applications to update and query the billing information.

Time and Money Savers

High-volume processing, using techniques such as parallel processing and compression, significantly reduces bill production time.

Discount Engine

The Discount Engine enables the definition of discount plans at any level of the corporate structure. Amdocs Billing supports these discounts by aggregating the relevant performance at each level and applying the correct credit to the billing arrangements and subscribers eligible for the given discount.

Cross Cycle Distribution

Because Amdocs Billing offers the option of cross-cycle charge distribution, the cycle population is composed of two customer types:

- Service receivers – Subscribers, units, or customers

- Payers – Pay channels related to billing arrangements

In most cases, payers pay for charges generated by service receivers in the same cycle. However, in some cases, subscribers might assign their charges to a billing arrangement in a different cycle. In this situation, the subscriber charges are collected and calculated in the subscriber's own cycle and then entered into the database where they are maintained until the target billing arrangement's cycle occurs.

Flexible Charge Definition

Amdocs Billing enables users to define different charge structures and attributes for different types of charges. For example, recurring charges, one-time charges, and usage charges may each have a different set of attributes. Likewise, voice and data charges may have different charge structures.

Flexible Cycle and Bill Production Frequency

The Billing component enables the definition of a variety of cycle lengths, which can be monthly, weekly, or any multiple thereof. Bill production can either coincide with the cycle or occur every X cycles.

A customer's bill production frequency can be different for different services. For example, a customer with a monthly cycle may be billed for data services each month, while voice services are billed on a bi-monthly basis.

Bill On Demand (BOD)

The Billing component enables the creation of billing documents outside the context of the customer's regular billing cycle. The requests can be made either manually or automatically (e.g., when a certain charge threshold is exceeded). The following are some examples of the types of BOD supported:

- Final – When a customer is canceled, a request for a final BOD can be issued. Billing documents are created for all the customer's billing arrangements and include everything normally contained in a regular billing document.

  This type of BOD is considered to be the customer's final bill. The only documents that can be subsequently created for the customer are revised final billing documents.

- Regular – Upon request by a customer or CSR, a BOD can be issued for a specific billing arrangement. This document includes all event and one-time charges recorded to date for the particular billing arrangement.

- OC only – Upon request by a customer or CSR, an OC only BOD can be issued for a specific billing arrangement. This document includes the given billing arrangement's one-time charges only.

- UC only – Upon request by a customer or CSR, a UC only BOD can be issued for a specific billing arrangement. This document includes the given billing arrangement's event (i.e., usage) charges only. This option can also serve to limit customer usage by providing a bill whenever a certain usage threshold is exceeded.

- Specific subscriber – Upon request by a customer or CSR, a BOD can be issued for a specific subscriber belonging to a particular billing arrangement. This document includes all event and one-time charges that are attributed to the particular subscriber and charged to the given billing arrangement.

In all the above cases (except final), the next regularly scheduled billing document includes all charges for the entire cycle period. The duplicate charges and credits (i.e., those already created for the BOD) are handled by including adjustments to reverse them. This is done to ensure the correct calculation of billing discounts, which may be affected by performance over the entire cycle period.

A bill on demand request can be processed either immediately or together with the nearest bill cycle run (also known as an expedited bill on demand).

Billing Configurator

Each CSP has its own individual system requirements necessitating a unique implementation of the Billing component. A standalone GUI application enables the implementation team to set billing parameters and preferences quickly and easily.

Re-use of Rating Engine for RC and OC Rate Calculation

Amdocs Billing re-uses the event pricing engine to calculate the recurring charge (RC) and one-time charge (OC) rates.

The RC rates are recalculated if the customer-facing system (such as Order Management) performs an activity that might change the RC rate. (For more information on how Amdocs Billing interfaces with the ordering system, please see the section on Service Order Rating, below.)

The OC rates are calculated whenever the customer-facing system performs an activity requiring the creation of a one-time charge.

Amdocs Billing monitors the relevant customer activities and creates an event for the pricing engine. The pricing engine calculates the OC rate or the new RC rate and returns it to the Billing component, which stores this rate in the database. Billing then prorates the RC rate on bill day, if necessary.

Amdocs Billing also provides a quotation server. By re-using the Pricing Engine in quote mode, the Billing component can provide a quote for an RC or OC rate using the same algorithms that are used when the charge is actually created.

Service Order Rating (SOR)

The Amdocs Service Order Rating (SOR) feature supports the product delivery process by interfacing between the Order Management and Billing systems.

The SOR calculation of the recurring and one-time charges that are associated with orders for services and equipment (S&E) is based on the following:

- Order components – S&E and the relevant associated parameters

- Customer information – Customer's agreements with the CSP and customer parameters

- CSP policy and Product Catalog – Maintaining the CSP's rating schemas

- General market rating rules (such as tax)

SOR comprises daemon processes that constantly listen for files arriving from ordering systems. Therefore, recurring and one-time charge rates are captured when they are created or changed rather than on bill day.

Multi-Currency Support

Amdocs Billing supports the definition of charge amounts and rates in a variety of currencies. Moreover, a different billing currency can be defined for each billing arrangement. Amdocs Billing converts the charge amounts to the billing arrangement's billing currency before issuing the billing document.

Support for Backdating Beyond Cycle

Amdocs Billing supports the calculation of charges and credits as a result of:

- Backdated activities performed on customer entities, including:
  - Offers (adding, removing, modifying)
  - Subscribers (activating, canceling, and so on)
- Backdated changes in Amdocs Product Catalog, such as price changes

In all the above cases, Amdocs Billing calculates the difference between the actual billed amount and the newly calculated amount. The differences are shown as charges or credits on the billing document of the current cycle.

Main Processes

The following sections briefly explain the main processes of Amdocs Billing in the order in which they are performed.

Charge Generation

This process collects rated and calculated charge data from source systems and generates the relevant charges. In addition, Amdocs Billing can generate special charges and credits based on discounts.

Invoicing

This process is responsible for the preparation of invoices for each billing arrangement. It includes tax calculation and the accumulation of charges according to various parameters defined by the user.

Document Creation

This process prepares additional document sections that display statement information if required. These are the various statements that can be prepared:

- Invoice statement – Includes a calculation of the amount due from the current billing cycle.
- Bill statement – Includes financial information extracted from Accounts Receivable and a calculation of the total amount due.
- Prepaid statement – Uses information extracted from Replenishment Management.

Bill Extract

The billing information accumulated and processed in the previous steps is extracted for bill formatting. The information extracted includes all relevant financial information and charge messages that appear on the document.

Billing Messages

The billing messages, handled via the FYI message mechanism, are marketing and informational messages aimed at a specific population.

Amdocs Billing enables the definition of the FYI message inclusion rules applicable for each billing arrangement.

Bill Audit

The Bill Audit process provides a variety of reports and Quality Assurance (QA) sampling tools that verify the results of the billing process before the actual bill extract. Bill Audit also provides information on errors or discrepancies at or near the point of occurrence. This enables the early handling of problems, and saves the time and effort that would have been required had the errors continued throughout the billing process.

Quality Assurance

Quality Assurance enables the audit group to examine samples of billing documents for accuracy and clarity. The QA sampling process is used to generate examples of billing documents, according to a set of criteria or a list of sample customers. The sample billing documents, together with the various reports, are used to determine whether the billing results are satisfactory. On the basis of this data, the system applies the Bill Confirmation or Bill Undo procedures to the billing population.

Reports

The reports present statistical information about the bill cycle as well as the total revenue amount by category.

Amdocs Billing also provides a tool to flexibly define other extracts required by a third-party report generator. This means the CSP can define any report population and can perform additional auditing of the billing results.

Error and Reject Handling

Amdocs Billing can reject bills due to a lack of data integrity. The rejection can occur in the following billing processes:

- Charge Generation

- Invoicing

- Document Creation

Bill Undo

When a problem is detected during auditing, the Bill Undo process enables the reversal of the billing process and the recalculation of the billing document or the service receiver charges, once the problem has been corrected. This reversal option can be applied to the entire cycle or to a specific population only. The Bill Undo process can include rerating of the relevant customer events if the offer rates were not specified correctly. In such a case, the billing results are undone, the events are rerated, and the billing document is recalculated.

Bill Confirmation

Following the Bill Audit processes, the audit group determines whether the results are satisfactory so that the billing documents can be sent to customers. The billing results are then posted to Accounts Receivable.

Efficient and Customizable Bill Day Processing

Amdocs Billing provides efficient bill day processing through:

- Parallel processing (pipelining)

- Flexible flow to enable customization of the bill day flow

- Efficient event error handling

Parallel Processing (Pipelining)

Amdocs Billing enables independent processes to run concurrently, waiting for other processes only where necessary. Examples of processes where parallel processing is implemented are:

- Bill Preparation and Rerating – Entities requiring rerating are isolated into separate groups. Rerating of these groups and Bill Preparation of all other groups proceed concurrently. Then, once rerating is complete, Bill Preparation can proceed for the rerated groups.

- Event extract – Started immediately after rerating and run concurrently with Bill Preparation.

- Bill Preparation and Bill Formatter extracts – Bill Formatter extract processes that are not dependent on the Bill Preparation flow (such as Customer Management, Accounts Receivable, Reference, Event, and Non-Charge Performance Indicator extracts) run concurrently. Generic Billing extracts and other Bill Preparation-dependent processes, on the other hand, wait for Bill Preparation to complete before beginning. Division into groups (specifying group size or number of groups) can be configured separately for the two parallel flows (Bill Preparation and Bill Formatter extract).

Flexible Flows

Amdocs Billing provides the flexibility to decide which of the billing processes will run during bill day. The user can choose the mode of operation (which can be modified or customized), which results in the execution of only a subset of all the processes in the flow.

Efficient Event Error Handling

The interface between billing and event processing includes separate files for successful and rejected data. By using this method, the Billing component provides the ability to process successful data immediately, while only rejected data is sent for reprocessing.

Terminology

The following sections describe basic billing terms and acronyms used in this document.

Terms

The following terms are used in this document:

Term	Description
Account	The financial entity that carries a balance and is liable for paying all charges for the services assigned to it. A customer can have several accounts.
Accounts Receivable (AR) Account	An AR account represents the entity for which the balance is tracked. The AR account can track the balance of single or multiple billing arrangements.
Bill	A bill is a document that reflects all the charges and credits incurred by a billing arrangement during the cycle. The document also contains a periodic invoice and a statement of the account. A bill is produced for single billing arrangement accounts only. For accounts with multiple billing arrangements, each billing arrangement receives an invoice (not a bill).
Bill Day	Bill day refers to the day on which all processes that run during the billing process are concluded. The bill day occurs once for each cycle and cycle period.
Billed vs. Unbilled Charges/Credits	Billed charges and credits are items that appear on a billing document already produced for the customer. Adjustments to billed charges are usually created in Accounts Receivable as a result of a customer complaint and affect the account balance immediately. They are also referred to as immediate adjustments. Unbilled charges and credits are items that will appear on the upcoming billing document. The charges can be created for service receivers in other cycles while belonging to a payer in the current cycle, or they can be created for a service receiver or payer in the current cycle. Unbilled items are associated with charges or events that occur in the current cycle and affect the customer only on bill day. They are also referred to as pending/current/unapplied charges or credits.
Billing Arrangement	An entity that receives an invoice or bill. Only one postpaid pay channel can be mapped to a single billing arrangement, although the billing arrangement can include several prepaid channels. An account can have several billing arrangements to which different pay channels are mapped, reflecting different payment methods for different services.

Term	Description
Billing Document	The billing document is a document sent to a billing arrangement. The billing document can be a bill or an invoice. The billing document can include a statement for prepaid pay channels, as well as for a single postpaid pay channel.
Charge/Credit	A monetary amount on a billing document that affects the billing document balance.
Cycle Close Date	Identifies the last day of the cycle for which events, charges, and adjustments are included in the current billing document.
Invoice	An invoice is a document sent to a billing arrangement that reflects all the charges and credits incurred by the billing arrangement during the cycle. Note that an invoice does not contain an account balance statement.
Offer	A set of services to be provisioned, or a package of event-rate definitions that can be assigned to a subscriber. An offer can be a basic package, an additional package, or a discount plan.
Pay Channel	A specified payment method to which subscriber services can be mapped. A pay channel can be prepaid or postpaid. A pay channel can contain payment instructions for services on a regular basis, such as direct debit. A pay channel can also use cash payments, vouchers, or similar payment methods. A prepaid pay channel defines a prepaid balance and all the services that share that balance.
Payer	The entity that is responsible for paying for the services. Technically, this is usually the pay channel (PCN) mapped to the billing arrangement for which the document is produced. However, since the billing document is produced for the billing arrangement and not the pay channel, Amdocs Billing usually considers the billing arrangement to be the payer.
Proration	Proration is the proportional calculation of charges for a specific period of time within the billing cycle, rather than for the entire billing cycle. It is also the proportional calculation of credits to be applied in the following case: A subscriber pays in advance for services in the next bill cycle. However, service is interrupted and is not provided to the subscriber for the full cycle, even though payment has been made in advance.

Term	Description
Service	A service is the basic item that can be purchased. This can be one component, such as voicemail, or a group of components sold together in an offer. A service can be sold individually or as part of a package.
Service Receiver	The entity that receives the services for which the customer is debited. The service receiver is usually a subscriber or a unit.
Subscriber	A service user with a unique identification. Each subscriber has a specific status (such as active, suspended, or cancelled) and is assigned services and/or products. The exact definition of a subscriber can be implementation dependent. A simple example might be a user with a handset or a user who subscribes to a PSTN service. A more complex example would be a subscriber with multiple SIM cards and multiple numbers, or a user who subscribes to an ISDN service. A wireless subscriber can have ISP services as part of the same subscription. An ISP subscription might be implemented as a separate subscriber.
Subscriber Billing Profile	The Subscriber Billing Profile is the set of data elements that affect the way the subscriber is billed. Examples of the data elements include: ▪ Subscriber status ▪ Package purchased ▪ Services purchased

Acronyms

The following acronyms are used in this document:

Acronym	Description
AR	Accounts Receivable
BA	Billing Arrangement
BOD	Bill On Demand
API	Application Programming Interface
CM	Customer Management
CSP	Communication Service Provider
CSR	Customer Service Representative
EC	Event Charge
EP	Event Processing
GL	General Ledger
OC	One-Time Charge
PCN	Pay Channel

Acronym	Description
QA	Quality Assurance
RC	Recurring Charge
SOR	Service Order Rating
SMS	Short Message Service
TRB	Transaction Broker
VAT	Value Added Tax

2.   CHARGE GENERATION

The Charge Generation process collects all the data elements that are to appear on the billing document. This process is performed for each relevant billing arrangement or service receiver on a periodic basis, according to the customer billing cycle or upon request for a bill on demand.

The customer billing cycle refers to the bill cycle period between predefined dates. The bill cycle population comprises service receivers and payers who belong to the current cycle. In most cases, the payers pay for charges related to service receivers in the same cycle. However, a situation can occur in which a payer is responsible for charges created by service receivers belonging to other customers in other cycles. Each new customer is associated with a billing cycle during customer initiation.

The Charge Generation process collects all the charge requests (the recurring, one-time, and event charges for the relevant billing period) and creates credits and charges based on the charge information.

The service receivers' recurring charges are prorated when necessary.

The Charge Generation process also applies discounts to appropriate charges and billing documents. Discounts are not applied to bill on demand (BOD) documents (other than for a final bill on demand); rather, they are applied to the next regularly scheduled document.

The output of the process is two files:

- A charge file for all customers in the current cycle, awaiting the bill day step.

- A charge file for customers assigned to billing arrangements in other cycles. This file is saved to the database until it is processed by the other cycles.

The Charge Generation process includes a number of main activities:

- Calculating charges

- Performing charge distribution

- Applying discount plans

Calculating Charges

The Charge Generation process calculates various types of charges.

Event Charges

These charges are based on the events that are rated and accumulated during the cycle by Amdocs Rating. Event charges accumulate the monetary amounts of events related to the same products and services, and include additional information such as free unit utilization. Event charges are always

generated for the billing period that ends on the service receiver's cycle close date.

Recurring Charges

Recurring charges (RCs) for the service subscription can be generated on a periodic basis, as defined by the relevant pricing package. In order to ensure that RCs are up-to-date on bill day, they are calculated during the cycle whenever a potentially relevant activity occurs. These activities include the following:

- Initiating a new subscriber

- Suspending or restoring a subscriber

- Changing a parameter

- Applying a new offer

- Performing Customer Management activities that might require proration of the resulting recurring charge (such as changing an offer or canceling a subscriber)

- Changing a Product Catalog scheme

All of the above activities can be backdated (even to a date prior to the current cycle). In this case, Amdocs Billing adjusts the RC rates table to reflect the backdated activity.

The Billing Configurator is used to define the activities that are relevant for RC rate calculations.

On bill day, the recurring charges are calculated according to the effective rates. Recurring charges relating to a partial period of service subscription (mid-cycle activation or cancellation) are prorated accordingly.

The recurring charges are usually generated in advance for the upcoming billing period, although Amdocs Billing also supports calculation in arrears. The recurring charges can be generated separately per subscriber or at a higher level in the customer hierarchy, depending on the relevant package definition.

Recurring charges can occur daily, weekly, monthly, or any multiple thereof. This enables the definition of RC rates that can be applied at almost any frequency. On bill day, Amdocs Billing considers this frequency together with the cycle frequency in order to generate the appropriate charge.

One-Time Charges and Credits

One-time charges and credits are usually generated as pending charges resulting from various Customer Management activities. These charges and credits include activation or cancellation fees, charges resulting from backdated activities, equipment purchase charges, charges for special customer requests (such as bill reprint), charges received from external sources (such as e-commerce purchases), and charges manually created by CSRs. The charges and credits are collected by Amdocs Billing, applied to the appropriate customer bill (according to the charge's effective date), and added to the amount due.

RC and OC Charge Rates

The RC and OC rates are calculated by using the event processing rating engine, along with the rating schemes defined in the Product Catalog. The re-use of the rating engine provides the same flexibility and complexity in RC and OC rate definition as for event rates.

Third-Party Charges

Amdocs Billing can receive third-party charges through files that are processed through Guiding. An Amdocs Billing process receives the charge files from Guiding and creates the charge requests, which are then collected on bill day. The charges might include dynamic attributes defined according to the third party from which they are received.

Charges with Tax Included

Charges that include tax can be received by Amdocs Billing. The tax reversal process is used to extract the tax amount from the charge amount if the tax amount is not received in a separate field.

Performing Charge Distribution (Split Billing)

Charge Distribution involves the distribution of one service receiver's charges among several billing arrangements belonging to the same customer or different customers. The customers can belong to the same cycle or different cycles. For example, an employer can pay recurring charges while the employee pays for events. If the service receiver and the payer are not in the same cycle, the service receiver's charges are kept in the database until the payer's cycle is initiated and the charges are assigned to the relevant payer's bill.

Applying Discount Plans

Amdocs Billing calculates applicable discounts according to the customer's discount plans (as defined in the Product Catalog), considering customer performance. Discount plans can be associated with various levels of the customer hierarchy and calculated according to the customer's performance for all the relevant service receivers.

Discounts can be prorated according to the time the discount plan was in effect for the customer during the cycle.

Flat, stepped, and tiered discounts are supported, as is the definition of the population receiving the discount.

3. INVOICING

The Invoicing process summarizes the charges for each billing arrangement, calculates the tax for the charges, and relates the charges to an invoice.

This process uses information defined in the Billing Configurator to summarize charges according to group definitions for each billing arrangement. For example, charges can be summarized according to subscriber or pay channel.

The Invoicing process creates an invoice for each billing arrangement that belongs to the bill cycle. It includes two main activities:

- Application of taxes
- Dynamic accumulation of charges

Application of Taxes

The Invoicing process supports two different tax application methods:

- Internal tax – Tax calculation is based on tax rules and regulations defined in the tax policy tables. Different tax rates can be defined for tax qualifiers such as geographical zone and service type. Billing monitors changes to customer-specific parameters that are relevant to tax calculation (such as address).

- External tax – Tax calculation is performed using an external tax package. This method is used when the tax rules are complicated (primarily for use in the United States).

A variety of tax exemption types (such as service and customer exemptions) are supported.

Dynamic Accumulation of Charges

Amdocs Billing provides the option of accumulating charges for different groups according to criteria defined by the implementation team. In addition to the accumulated charge fields, the user can set the selection criteria used to define the groups. These criteria can be charge, tax, or relevant customer attributes.

The dynamic accumulations can be used for reports (such as total duration of international calls or total volume for data uplink or downlink), for the bill printing utility (such as total charges by subscriber or by pay channel), or tax purposes (such as accumulating charges to be taxed together as a group).

Special Bill Types

The Invoicing process determines when to produce special bills. Special bill types include the following:

- Final bill – Produced after a billing arrangement has been defined as cancelled following the cancellation of all related services. The final bill includes prorated charges and all pending future charges. The final bill can be produced on demand (BOD) or as part of the regularly scheduled bill cycle run.

- Revised final bill – Produced when a new charge or credit is applied to a cancelled billing arrangement.

4. DOCUMENT CREATION

The Document Creation process produces a document for each billing arrangement in the cycle.

There are three types of statements that can appear on the billing document:

- Invoice statement
- Bill statement
- Prepaid statement

Amdocs Billing produces two types of billing documents:

- Invoice – This billing document includes an invoice statement and may include one or more prepaid statements.
- Bill – This billing document includes a bill statement and may include one or more prepaid statements.

Customer preference or policy decision (derived from the customer type) determines whether the billing document is an invoice or a bill.

The following sections describe the various types of statements that may be included in a billing document:

Invoice Statement

The invoice statement contains the new charges and applicable taxes only, calculated according the customer's service consumption during the relevant period. No outstanding debts are included on the invoice.

Bill Statement

When a bill statement is produced, a periodic account statement is added to the invoice. The statement displays the account's previous charges, any financial activities (such as payments received or adjustments performed) that occurred during the cycle, and the resulting outstanding amount. This outstanding amount, added to the amount of the new invoice, constitutes the total amount due on the bill.

Prepaid Statement

The prepaid statement includes prepaid charges grouped by pay channel (defined by the implementation team). The statement also includes all replenishment activities that occurred during the current cycle period.

5.   BILL EXTRACT

The Bill Extract process extracts all billing data to be sent to the customer and transfers it to a bill production facility. The major activities supported by this process include the following:

- Bill data extract
- QA support
- Due date calculation

Bill Data Extract

The Bill Data Extract activity constitutes the preliminary stage of the actual bill generation. The data are collected from the various input sources and transferred to the bill production facility, according to a predefined protocol.

The Billing Configurator enables users to identify the bill data to be extracted from Amdocs Billing and directed to the bill printing utility or to a third-party report generator.

The Billing component enables the definition of the extract details and structure. The extracted attributes can be taken from any of the following:

- Charges
- Invoices
- Billing documents
- Bill statements
- Invoice statements
- Taxes
- Customer attributes

Quality Assurance Support

The QA group can examine sample bills either according to sampling criteria or by identifying specific billing arrangements that are of interest to the auditing team. Both methods result in a list of billing arrangements for sampling. The complete Bill Data Extract process is performed on this list.

Due Date Calculation

The extract process also calculates the billing document due date. This date is determined according to the policy derived from the customer type, but can be changed at the specific customer level.

The bill due date is calculated based on the date the bill is sent to the bill printing utility and not beforehand. This is to prevent the due date from becoming obsolete in the event of delays (for example, due to reject and undo processing).

6.   BILLING MESSAGES

Amdocs Billing can attach descriptive and marketing messages to the billing document. The Billing Configurator is used to define the messages and the criteria according to which they are applied.

The messages are divided into two major types:

- Charge messages
- Messages based on specific criteria

Charge Messages

A description of each charge, credit, or tax can be added to the billing document. Amdocs Billing retrieves each description and attaches it to the relevant item. The bill printing utility uses these descriptions when printing the item on the billing document.

Criteria-Based Messages

Criteria-based messages are those that are applied according to customer characteristics, such as customer type and credit class. Each message is associated with such qualification criteria and stored in the Billing database.

Amdocs Billing supports two kinds of criteria-based messages:

- For Your Information (FYI) messages are usually marketing communications printed on the billing document.
- Page Insert (PI) messages are preprinted at the print shop and inserted into the envelope with the billing document. The bill production facility is responsible for translating the page insert code into a code that can be identified by the inserter machine.

The messages and their qualification criteria are stored in Billing reference tables, which can be accessed by a customized process and applied to the appropriate bills. A single billing document can contain more than one FYI or page insert message.

7. BILL AUDIT

The Bill Audit service application ensures the integrity of the billing process and data. It monitors the day-to-day billing processes, functioning as an integral part of Amdocs Billing.

The Bill Audit application provides information on errors or discrepancies at or near the point of occurrence. This enables the early handling of problems, saving time and effort that would have been required had the errors continued throughout the billing process.

These are the main objectives of the Bill Audit application:

- Verifying that the data handled by the system is correct and complete

- Providing timely notification of processing abnormalities

- Collecting relevant control data that is made accessible to the users

- Providing statistical and revenue reports

- Providing tools that ensure the quality of the billing process results

The Amdocs Monitoring Console (AMC) is a Web-enabled GUI tool. Using AMC, the CSP can track the billing flow and processes in a visual and user-friendly manner. Billing business experts can use this tool to manage the bill cycle preparation, error handling, and bill undo procedures.

Quality Assurance (QA)

The Quality Assurance process provides the audit group with sample billing documents to verify the accuracy of the billing process and the clarity of the billing documents.

The bill sampling process is table driven and based on either criteria defined by the user (such as new customers, specific price plans, or the revenue range of a customer's balance) or a list of specific customers.

Amdocs Billing QA generates the QA Summary report. This report provides a list of all the billing documents selected for QA in the current cycle, together with a detailed profile of the selected accounts. Each account's billing document is displayed with the relevant QA criteria.

Billing Reports

The following reports are supported:

- Run Verification report – The information extracted for this report is defined by the core Billing component.

- QA Summary report – Includes the cycle population selected for QA according to predefined criteria.

- External reports – Data is extracted for additional reports, which are generated outside the core Billing component. The CSP can use any report generator to actually produce the reports.

Run Verification Report

This report is created for each cycle and provides summary information regarding recurring charges, one-time charges, event charges, taxes, and other data. It is the primary report used by the audit group to perform each cycle's audit. The report is produced automatically at the end of bill preparation.

QA Summary Report

The QA summary report provides a list and detailed profile of the billing arrangements selected for the QA process.

External Reports

Amdocs Billing supports the definition of extracts required for other reports. The user can use the Billing Configurator to define the content and the file layout of any information needed to generate an external system report.

Error and Reject Handling

Amdocs Billing rejects a bill when the integrity of its data is suspect. The rejection can occur during the following processes:

- Charge Generation

- Invoicing

- Document Creation

Charge Generation

The Charge Generation process can cause a subscriber, and therefore a customer, to be rejected. If the customer is rejected, all associated billing arrangements are also rejected.

Invoicing

The Invoicing process can cause billing arrangements to be rejected. The billing arrangement is marked as rejected even though its associated subscriber charges are placed in the database. Once the problem is solved, a rerun is performed, beginning with the Invoicing process. This means that the Charge Generation process need not be run again.

Document Creation

The Document Creation process can also cause a billing arrangement to be rejected. However, the invoice information that was prepared in the previous billing process is already in the database, thus eliminating the need to rerun the Invoicing process. Rather, the rerun can start from the Document Creation process.

Bill Undo

When a problem is detected during auditing, this process enables the reversal of the billing flow. It then enables the rerating of events and the recalculation of the service receiver charges on the billing document, once the problem has been corrected. This reversal option can be used either for the entire cycle or selectively for specific customers.

8. BILL CONFIRMATION

Following the Bill Audit processes, the audit group determines whether the results are satisfactory so that the billing documents can be sent to customers. The approved billing documents then undergo a confirmation process in which they are sent to Accounts Receivable.

The results cannot be transferred to other internal or external components until they have been confirmed. Queries can be performed on confirmed information only.

The Bill Confirmation process does not necessarily have to be run the same day as the bill day processes, but it must be performed after the billing results are approved. The Bill Confirmation process can even be run on processed cycles that include rejects, if the CSP decides that the cycle can be confirmed.

Following confirmation, Accounts Receivable updates account balances and performs financial reporting. The CSP can then send the confirmed billing files to the print shop. If desired, printing may be postponed.

9. BILLING APIS

Amdocs Billing includes application programming interfaces (APIs) that can be used by various client front-end or batch programs to access Amdocs Billing. The APIs are used to create charges and credits and to retrieve information about both billed and unbilled activities.

These APIs are part of the Amdocs open system architecture that enables application developers to access Amdocs system components.

The APIs can be used in two modes:

- Synchronous mode

- Asynchronous mode – A gateway to third-party applications, enabling communication with the various Amdocs components

Amdocs Billing includes the following API groups:

- Billing arrangement services

- Charge services

- Customer services

- Document services

- Quotation services

- Reference data management services

- Bill on demand services

Billing Arrangement Services

These services provide information about billing arrangements and the charges that are related to a specific billing arrangement. This set of services also enables updating billing arrangement indicators such as zero balance and printing categories.

Charge Services

This set of services enables the creation and correction of charges and credits. The services also include the retrieval of charges according to predefined criteria.

Customer Services

This set of services includes the retrieval of customer information and the updating of tax exemptions.

Document Services

This set of APIs enables the retrieval of document information. It also provides for the retrieval of specific information, such as charges and taxes related to selected documents.

Quotation Services

The quotation services provide quotes for CSP customers who want to know how much a service request is going to cost or whether it entails a commitment.

Reference Data Management Services

This is an extensive set of services for retrieving billing reference data.

Bill on Demand Services

A bill on demand (BOD) is a specific bill or invoice produced upon request, outside the context of the customer's regular billing cycle. The BOD services enable the request or cancellation of a BOD request, as well as the retrieval of lists of BOD requests and created documents.

For a detailed description of the Billing APIs, refer to Billing API Reference Guide*.*

10. BILLING TRANSACTIONS

Amdocs Billing provides asynchronous messaging via a set of transactions that are sent through a uniform interface. These transactions consist of requests for maintenance or for business transactions provided by Amdocs Billing. The transactions are logged via the Amdocs Transaction Broker (TRB) mechanism. TRB is scanned for requests either periodically or on an ongoing basis.

Amdocs Billing uses TRB as a "publish and subscribe" tool for asynchronous communication with other components.

Using the Billing Configurator, the implementation team identifies the transactions monitored by Amdocs Billing.

The core Billing component publishes a predefined set of transactions. For example, when prepaid charges are created, Amdocs Billing publishes a transaction to which the Replenishment Management component subscribes. Another example is the change cycle confirmation transaction, to which the Customer Management component subscribes.

Amdocs Billing also subscribes to many Customer Management transactions, such as New Billing Arrangement, New Subscriber, and Parameter Change.

For a complete list of billing transactions, refer to Billing Transactions.

11. BILLING INTERFACES

Amdocs Billing interfaces are used for communication with other Amdocs components and with external systems. The implementation team can define the interface details using the Billing Configurator.

The core Billing component includes a set of file interfaces that must remain an integral part of the system.

These interfaces include Customer Management, Accounts Receivable, and usage accumulation interfaces with the Billing component. They also include (in the other direction) Billing interfaces with Customer Management and Accounts Receivable.

For a detailed description of interfaces, see Billing Detailed Interfaces.