

AdvOSS VoMS (Voucher Management System)

PRODUCT DATA SHEET

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AdvOSS Voucher Management System – Product Data Sheet

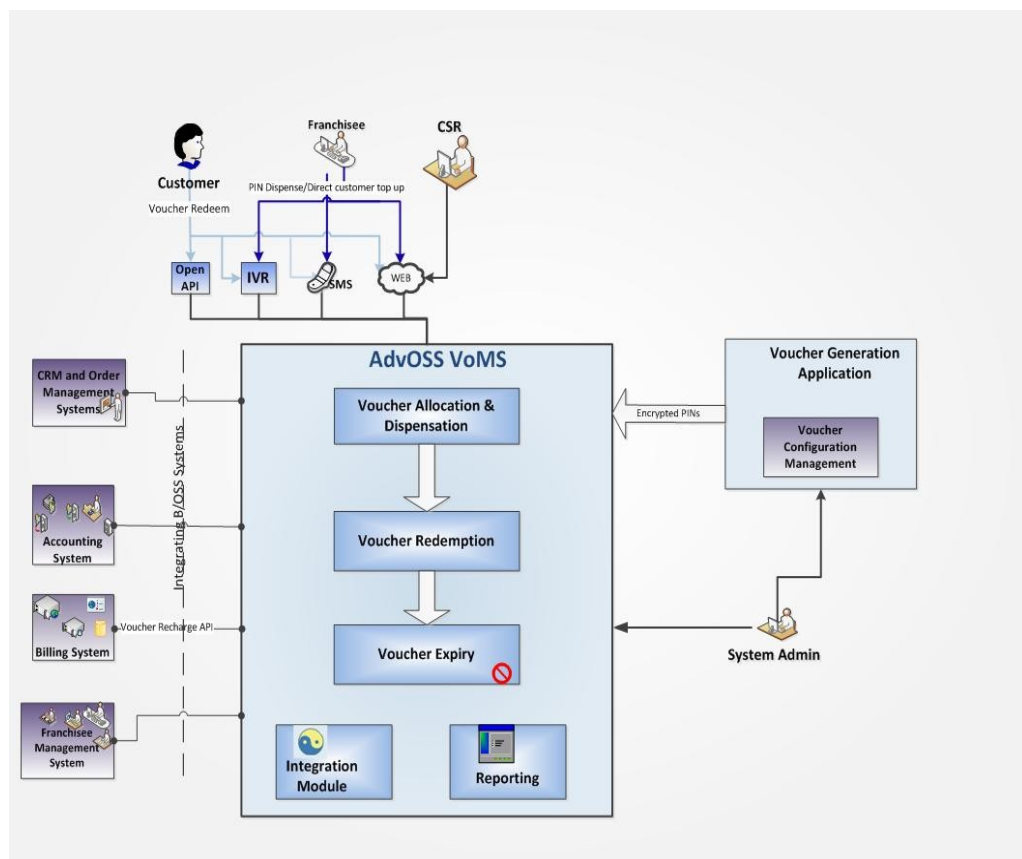
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1 AdvOSS Voucher Management System(VOMS)

AdvOSS Voucher Management System enables a Service Provider to use pins as payment vouchers. It provides a highly secure mechanism of pin generation and then full life cycle of the pin including activation, selling, and redemption and purging, Supports scratch cards and dispensable pins. Allows resellers to generate their own pins. Provides integration with different payment terminals. Generates real-time detailed reports for business intelligence

VOMS is an integral part of all prepaid systems and is also used extensively in areas where other online methods of payment processing are not yet feasible. Prepaid Vouchers remain the dominant model of payment collection for operators worldwide.



AdvOSS VOMS comes with complete voucher life cycle management and can be integrated with franchisee management systems.

AdvOSS VOMS architecture is based on open APIs and hence can be easily integrated with other B/OSS products to build larger solutions. AdvOSS has a range of B/OSS products in its portfolio with which AdvOSS VOMS comes pre-integrated as part of AdvOSS Solutions.

2 Business Use Cases:

- Generate new PINs
- Transfer encrypted PINs to live server
- Generate secure files with plain text PINs for printing
- Allocate PINs to Franchisees
- Sell PINs to Franchisees
- Activate individual PINs
- Redeem PINs
- Purge PINs
- Mark as Lost/Stolen
- Abuse protection

3 Modules

The AdvOSS Voucher Management System is composed of the following modules:

- Voucher Generation Module
- Voucher Allocation and Dispensation Module
- Voucher Redemption Module
- Voucher Expiry Module
- Reporting Module
- Integration Module

For details of these modules please see the section titled “Voucher Management System Modules & Features Specs” later in this document.

3.1 Voucher Generation Module

AdvOSS VoMS has a highly secure and efficient Voucher Generation application.

Voucher Generation is distributed across two applications:

i. Desktop based front end application

The desktop based front end application generates the vouchers and populates them directly over the network in a highly secure manner (one way MD5 hashes) to the web based server side application component. Various options like batch number, number of vouchers, etc are selected from this application. This application also generates the printer file containing the un-encrypted vouchers to be sent over for printing. The format of the printer file to generate is configurable to meet CSP specific requirements.

ii. Web based Server side application integrated with the Database

The web based server side application is integrated with the database. It receives the vouchers from the desktop application and assigns them serial numbers, and populates them into the database. Then it sends over the vouchers as well as their corresponding serial numbers over to the desktop application.

It supports the following two types of vouchers:

- Hidden scratch cards
- PoS Activated PINs

AdvOSS VOMS supports fully configurable voucher length varying from 4 to 32 digits. It also supports definition of multiple tax percentages and tax reporting per voucher redemption.

AdvOSS VOMS Also supports arbitrary 10 opaque data attributes for every voucher, each treated as a 32 bit character string. API for setting and getting these attributes is available.

3.2 Voucher Allocation And Dispensation Module(Optional)

This requires AdvOSS or 3rd party Franchisee Management System for allocation and dispensation of Vouchers.

This module has the following features:

a) Allocation of vouchers to franchisees:

The available vouchers in the voucher pool can be marked as allocated to different franchisees.

b) Dispensation of vouchers

Vouchers that are allocated can be marked as dispensed when franchisee or CSP POS dispense it to the enduser for actual usage.

3.3 Voucher Redemption Module

The Voucher Redemption module has the following features:

- i. API interface for redeeming vouchers
- ii. API interface for querying vouchers through which all attributes of a voucher are returned, including the 10 arbitrary opaque data associated with a voucher.
- iii. Changing the state of vouchers individually or in bulk for an entire batch
- iv. Offers abuse control by disabling further operations on a voucher if a certain threshold of failed redeem requests is reached for that voucher. This is checked, by matching with any one of 10 opaque data keys associated with each voucher. The threshold beyond

which further requests containing a particular opaque data key need to be rejected, is configurable and can also be reset through API and admin interface. E.g. the opaque data might contain subscriber id or franchisee ID or city, depending on the use case required by the CSP.

- v. Real-time administrator control of batches and PINs to block selected batches

3.4 Voucher Expiry Module

This module contains the following features:

a) Pre Sales expiry of vouchers

Vouchers can be expired after generation but before dispensation.

b) Post Sales expiry of vouchers

Vouchers can also be expired even after being sold or dispensed.

3.5 Reporting Module

AdvOSS VOMS offers comprehensive Reporting Features including the following:

- i. Integration with external BI systems and data warehouses.
- ii. Report for consumption by external accounting systems
- iii. Voucher Activity reports over a period of time.
- iv. Reporting based on any of the 10 opaque criteria associated with vouchers.

Customized reports can also be provided as per CSP requirements, on demand.

3.6 Integration Module

This module offers the following features:

- i. Open API to integrate with any third party CRM or payment processing system. e.g. XML over HTTP , SOAP , XML
- ii. Optional: Integration with third party prepaid IN or billing solution.
- iii. Possible integration with many PoS terminals including GPRS, CDMA and Wi-Fi based POS terminals.
- iv. Easy integration with all "PIN dispensing machines" including Bank ATMs, KIOSKs and other such terminals.
- v. Optional: IVR Server for IVR based voucher redemption
- vi. Optional: SMS interface for SMS based voucher redemption
- vii. Optional: Web based voucher redemption module.
- viii. Optional: Web based voucher sales module.

4 Integration Points

AdvOSS Converged Billing offers points of integration with the following systems:

4.1 CRM and Order Management Systems

AdvOSS VOMS can integrate with CRM and Order Management Systems that are responsible for order management as well as customer centric operations. AdvOSS offers its own fully featured CRM as well with which AdvOSS VOMS comes pre-integrated.

4.2 Billing Systems

AdvOSS VOMS can integrate with the Account Balance Management Function (ABMF) inside the Billing Systems that are responsible for billing and revenue

management. AdvOSS offers its own fully featured Converged Billing System as well with which AdvOSS VOMS comes pre-integrated.

4.3 Franchisee Management Systems

AdvOSS VOMS can integrate with Franchisee Management systems that are responsible for managing the Franchisee and Distributor Channels of the CSP. AdvOSS offers its own fully featured Franchisee Management System as well with which AdvOSS VOMS comes pre-integrated.

4.4 Subscriber Self Care Applications

AdvOSS VOMS can integrate with Subscriber Self Care Applications on the following three interfaces:

- a. -IVR
- b. -Web
- c. -SMS

AdvOSS offers its own fully featured Subscriber Self Care Application as part of AdvOSS CRM, with the above three interfaces and with which AdvOSS VOMS comes pre-integrated.

4.5 Accounting Systems

AdvOSS VOMS can integrate with accounting systems that are responsible for managing the accounting information for the CSP. The integration is done through reports generated by AdvOSS VOMS and imported into the Accounting System.

5 Key Benefits

AdvOSS VOMS offers the following key benefits to the CSPs, in addition to its feature set:

5.1 Scalability:

AdvOSS VOMS is highly scalable, scalability metrics are listed below:

- i. PIN Generation capacity 1,000 PINs per second. Scalable to 10,000 PINs per second and beyond.
- ii. PIN Redeem capacity 50 PINs per second scalable to 1,000 PINs per second and beyond.
- iii. PIN holding capacity: 10 million PINs to 10 billion PINs and beyond.

5.2 Reliability:

The system provides high reliability and ensure mechanism to avoid system downtime though fully redundant architecture.

5.3 Configurability

AdvOSS VOMS offers flexible configuration of all modules including PIN length, Series, Batches, denominations, taxes, commissions, reporting.

5.4 Robustness:

The system is very robust and keeps performing in the fact of errors.

5.5 Customizability:

The system is designed to allow for easy and rapid customizations as per CSP requirements, on demand.

5.6 Disaster Recovery:

The System can be deployed in two geographically distant data centers, for disaster recovery reasons. AdvOSS Database solutions provide real-time DB replication to remote slaves. This gives the remote location an almost real-time image of the live database and the system can fall back to remote location in a disaster situation.

5.7 Flexibility:

The system is service agnostic and has the architectural provision to support any business model. This allows for easy customizability to support specific requirements of a CSP.

5.8 Resilience:

The system works at high loads within its thresholds and gracefully keeps working by handling the situations even beyond the guaranteed thresholds e.g. by rejecting requests.

5.9 Speed:

The system guarantees high speed of operations and latency times associated with the operations.

5.10 Data Integrity:

The systems preserve the integrity and correct relationship of data in order to guarantee the correct behavior.

5.11 High Availability:

The system uses various techniques to ensure a high availability behavior.

5.12 Redundancy:

The system achieves redundancy through multiple methods like having database servers in active/active configuration. The database servers as well as the servers hosting the GUIs are hosted in geographically distributed data centers.

5.13 Security:

AdvOSS VOMS provides very high degree of security by offering the following:

- i. PINs are only exported to live VOMS servers in one way high encryption Hashes.
 - ii. Encrypted PINs cannot be decrypted by anyone even with knowledge of all passwords and keys.
 - iii. Locking of individual subscribers with multiple failed voucher recharge attempts when matched with any one of 10 opaque data keys associated with each voucher. The threshold beyond which further requests containing a particular opaque data key need to be rejected, is configurable and can also be reset.
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