

SAP Sybase IQ 16 Advanced Security Option Technical Overview

Courtney Claussen/Analytics Product Management
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AGENDA

What's Happening in the Marketplace

Product Success

SAP Sybase IQ 16

SAP Sybase IQ Security Landscape

Base Product Security Features

Advanced Security Option Features

Summary

Marketplace Today

What's Happening in the Marketplace...

BUSINESS INTELLIGENCE

PROFITABILITY

PREDICTIVE

LOB ANALYTIC APPLICATIONS

ADVANCED ANALYTICS

INFORMATION MANAGEMENT

COMPLIANCE MONITORING

LOB & INDUSTRY

BUSINESS ANALYTICS

PERFORMANCE MANAGEMENT

RISK MANAGEMENT

DATA WAREHOUSE

STRATEGY

Exploding Data
Volumes

The Need for
Speed

Rising IT Cost and
Complexity

Challenges customer face today?



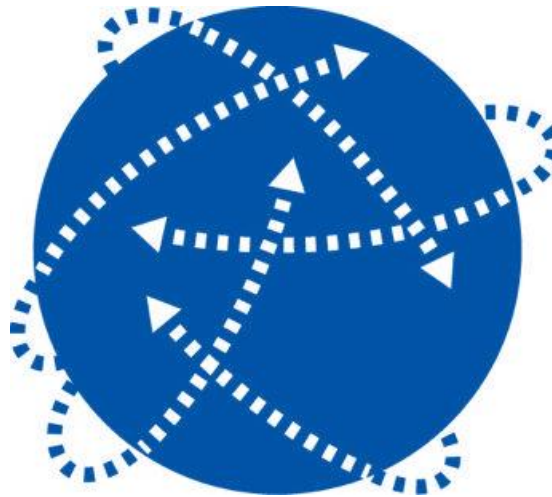
Lost revenues due to
lack of insight



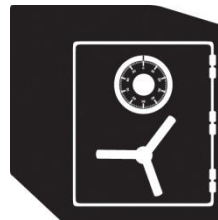
High Costs &
Complexities



Slow Performance



Data Management
Challenges

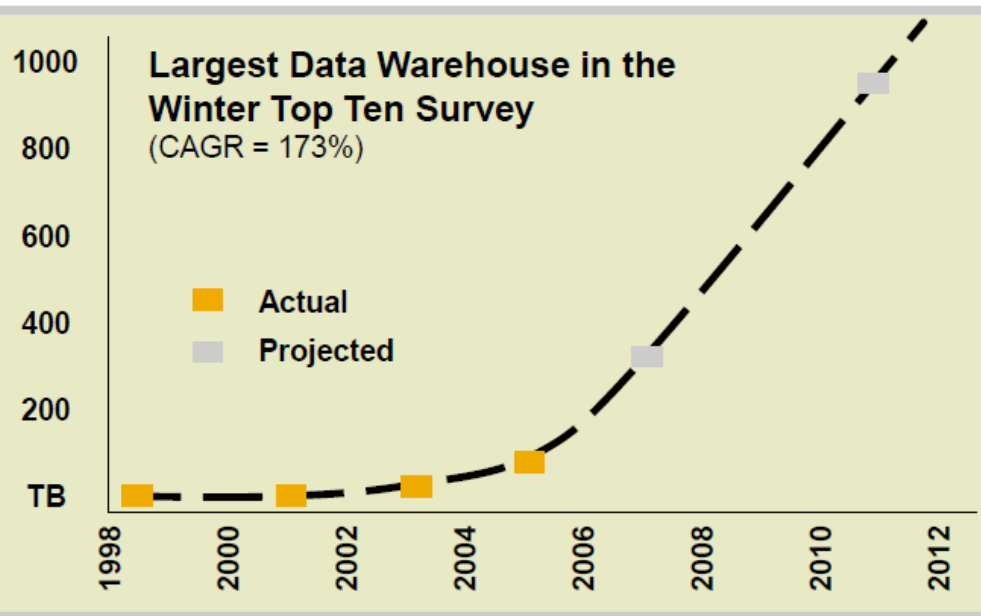


Security

SAP Sybase IQ 16 Motivators

“Petabyte is the new Terabyte” - Forbes

The data explosion continues: Data volumes in analytics environments are growing exponentially...



Source: WinterCorp

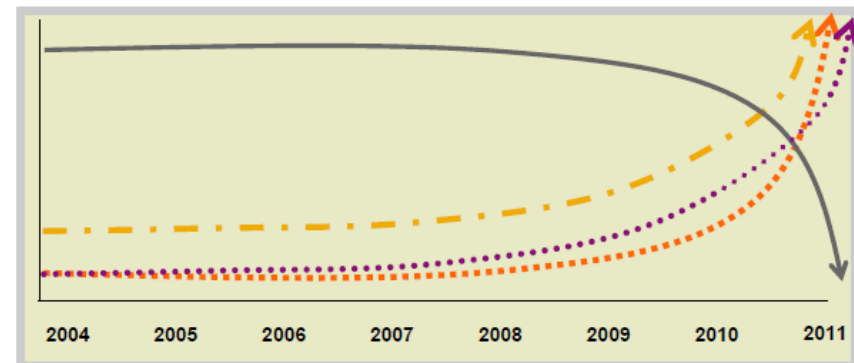
Meanwhile, what trends are you seeing...

Number of business decisions supported by data?

Number of users accessing analytics environments?

Required response time?

Resources required to maintain performance?



Product Success

SAP Sybase IQ: Market Leader for Extreme-Scale EDW and Analytics

High performance analytics server

- Columnar RDBMS (stores data in columns-versus rows)
- Optimized for managing and accessing massive amounts of data for analytics (versus transactions)

Accelerates analytics and reporting

- Up to 1000-times faster than traditional transactional databases
- Handles structured and unstructured data
- High compression and low TCO
- Highly scalable grid architecture

SAP Sybase IQ Facts

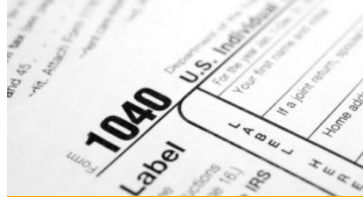
- 2200+ customers with over 4500+ installations worldwide
- Used by twice as many companies as the next leading provider
- Patented data compression dramatically reduces data storage requirement; cuts TCO
- Only column-based solution to support full text search, in-database analytics, and federated analytics
- 96%+ customer satisfaction rates
- Leader, 2013 Gartner Magic Quadrant for Data Warehouse DBMS

SAP Sybase IQ big data analytics

Pervasive across data intensive industries worldwide



Manage and analyze statistical measures for the entire nation of Canada



Analyze ALL Federal tax returns in the US



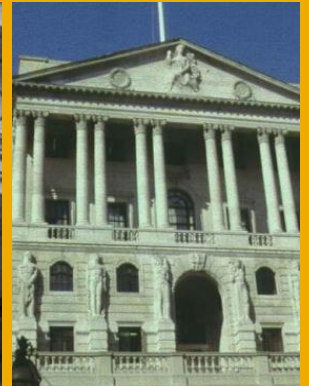
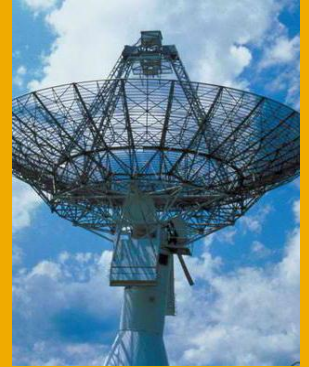
Analyze complex models in more than 200 financial institutions worldwide



Store and analyze massive amounts of industry segment data in 30 of the largest information providers in the world, including Transunion, Nielsen and Axiom



Stands out as the leading enterprise data warehouse among the largest banks, insurance agencies, and telecom operators worldwide



SAP Sybase IQ 16

Solution Overview – SAP Sybase IQ 16



SAP Sybase IQ transforms the way companies compete and win through actionable intelligence delivered at the speed of business to more people and processes.

Value of SAP Sybase IQ 16

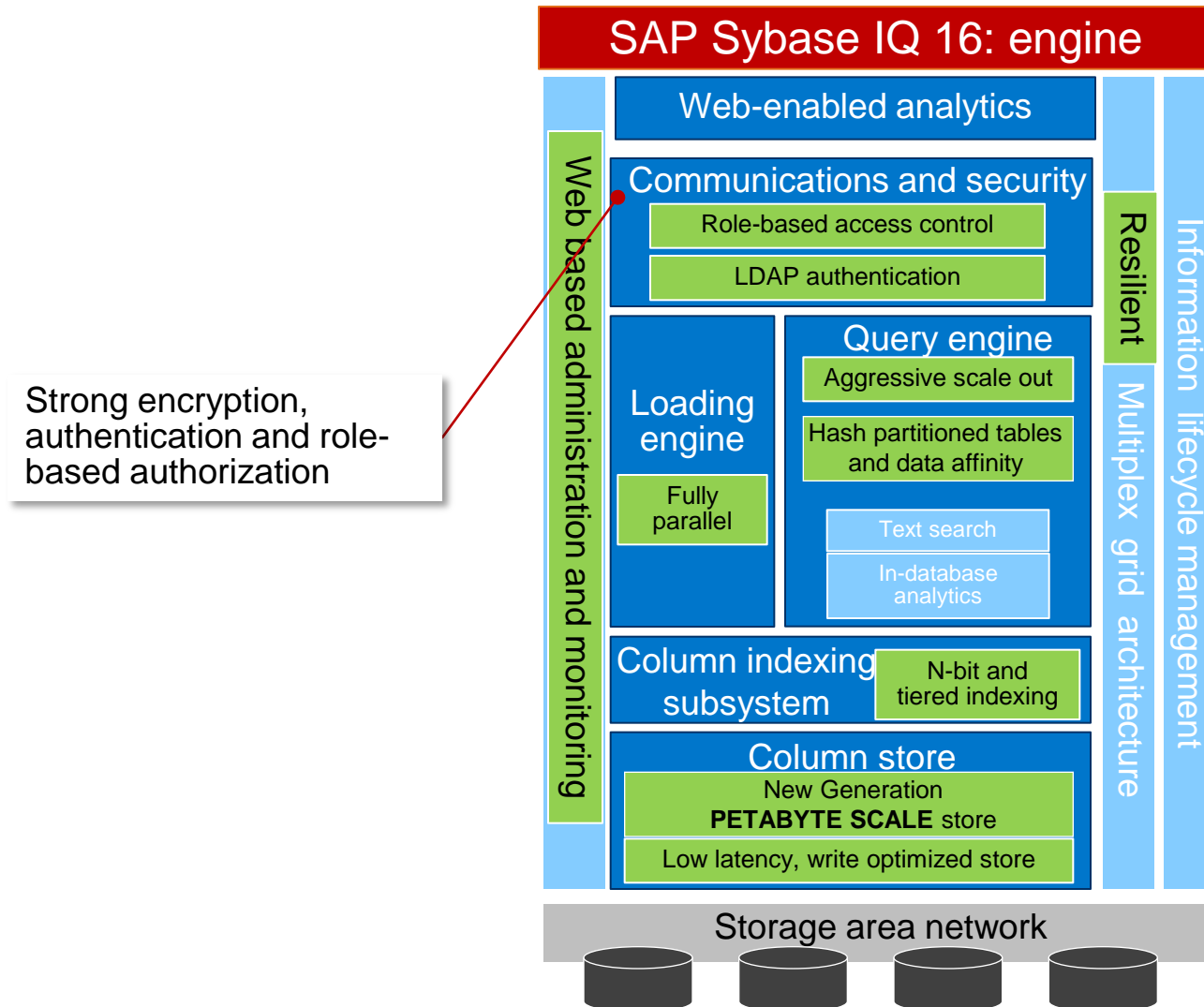
- 1 Exploits the value of Big Data**
- 2 Transforms businesses through deeper insights**
- 3 Extends the power of analytics across the entire enterprise**

SAP Sybase IQ Security Landscape



SAP Sybase IQ 16

Security features



Advanced security option

Benefits

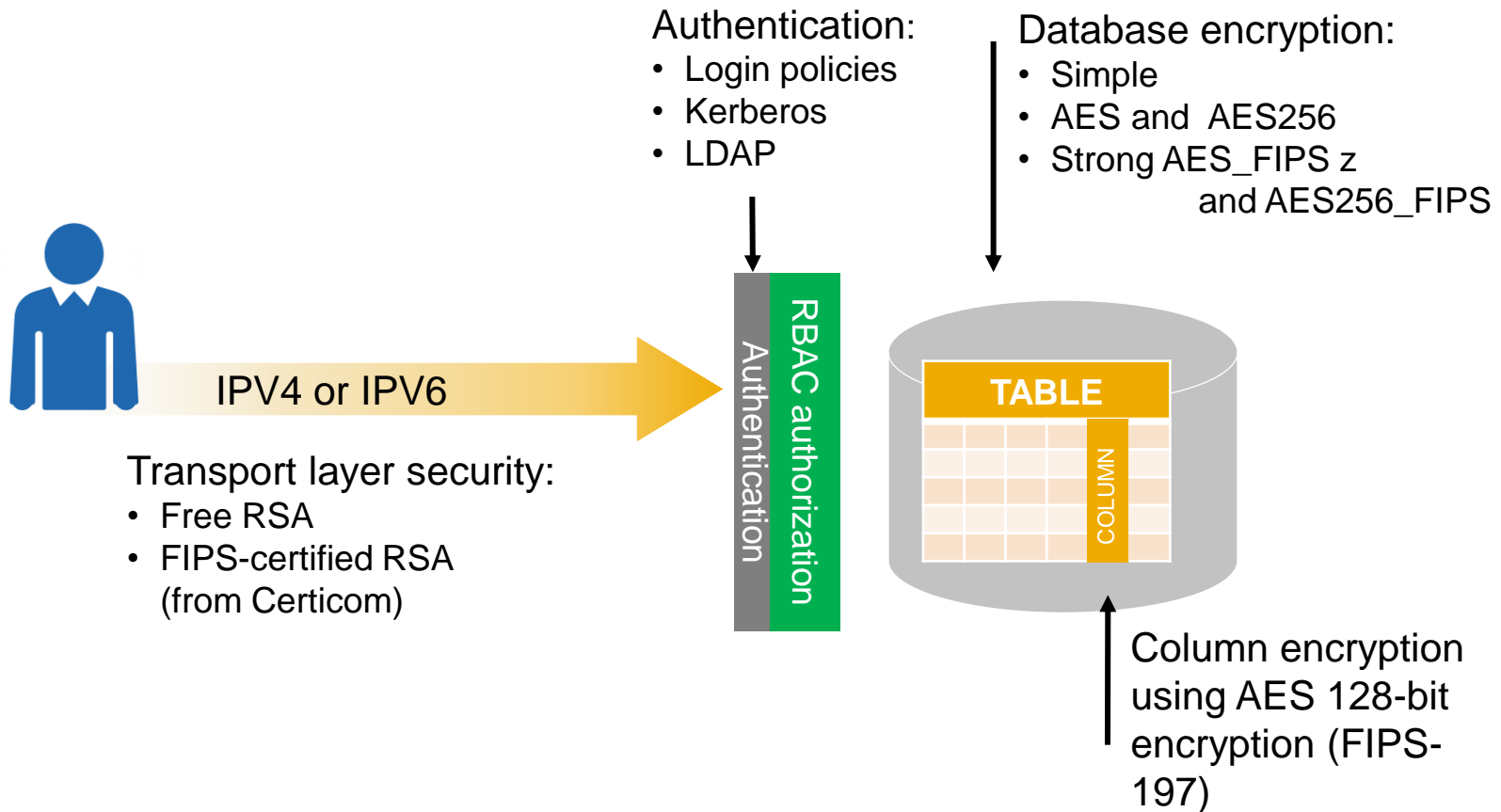
Option	Authentication	Authorization	Encryption
Advanced Security Option	<ul style="list-style-type: none">• Kerberos authentication• LDAP authentication	(nothing additional)	<ul style="list-style-type: none">• Strong encryption of individual database columns• Strong FIPS certified encryption algorithms using Certicom technology
SAP Sybase IQ Base Product	<ul style="list-style-type: none">• Users and groups• Configurable password change and account locking login policies	<ul style="list-style-type: none">• Granular database administration authorities• RBAC authorization	<ul style="list-style-type: none">• Database encryption• Transport layer encryption
Database auditing: logins, data update timestamps, and administrative actions (part of base product)			

Security architecture

Authentication, authorization, and encryption

Advanced security option:

Strong FIPS encryption, Kerberos and LDAP authentication



Base Product Security Features

Login management

Password change and account locking policies

iqblade10_policy Login Policy Properties

General | Multiplex Configuration

iqblade10_policy

Type: Login policy

Options:

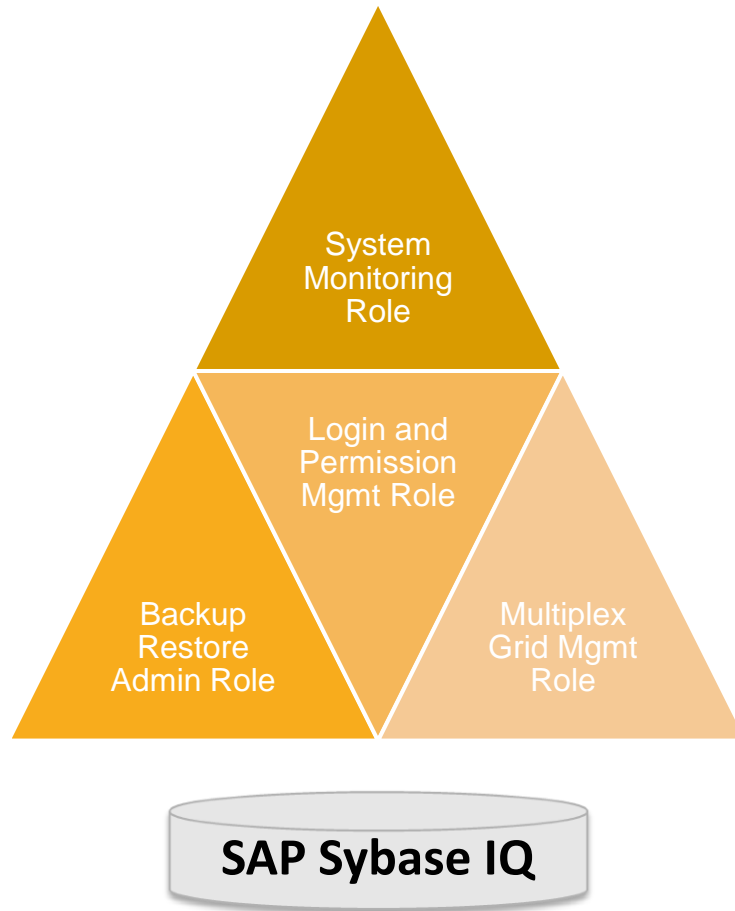
Name	Overridden Value	Root Policy Value
Password life time		Unlimited
Password grace time		0
Password expiry on next login		Off
Locked	On	Off
Maximum connections	5	Unlimited
Maximum failed login attempts		Unlimited
Maximum days since login		Unlimited

Clear All Overridden Values Reset to IQ Default

Comment:

OK Cancel Apply Help

Database administration authorities



SAP Sybase IQ adoption in multi-subject EDW is picking up — requires complex activity permission control

Typical use case:

- Methodical, documented, policy based permission control for hundreds of tasks in the EDW
- No dependence on DBA as the single source of admin (and failure)
- EDW grade column store server with support for real-world deployment issues

Base product encryption

Database encryption:

- Optional encryption of entire database
- Encryption cannot be turned on/off dynamically. Database must be rebuilt
- Database encryption is done in the same layer as data compression/decompression
- Everything which is data or metadata is encrypted

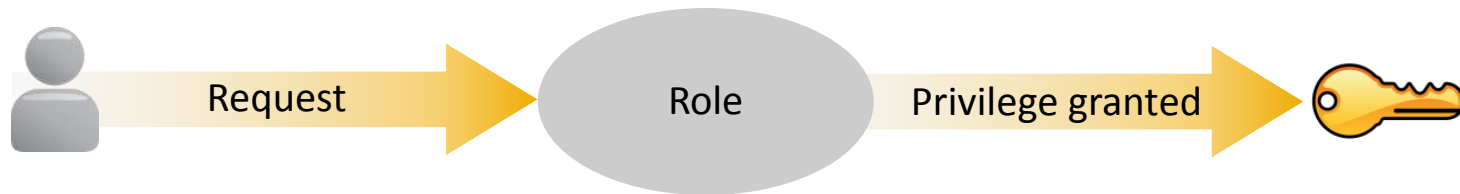
Transport Layer Security (TLS)

- Uses digital certificates and public-key cryptography
- Start up IQ server with a specific TLS start up option
- Client connection string to server specifies TLS parameters, such as location of trusted certificate

RBAC Authorization

Role Based Security – Separation of duties principle:

- Breakdown of privileged operations into fine-grained sets that can be individually granted to users
- Full control over which system privileges and roles can be granted to other entities



Users have the system and object-level privileges that are granted to their roles, or to them directly.

Advanced Security Option Features

FIPS certified encryption

SAP Sybase IQ uses two encryption algorithms:

- RSA: utilizes a public and private key pair
- AES: symmetric-key encryption algorithm

SAP Sybase IQ offers both FIPS and non-certified FIPS versions of RSA and AES

AES is used for database and database column encryption

RSA is used for TLS encryption

**In order to use FIPS certified RSA, or FIPS certified AES,
YOU MUST HAVE THE ADVANCED SECURITY OPTION!**

Strong transport layer security

Start an IQ server using RSA network encryption

```
iqsrv15 -ec
```

```
TLS(TLS_TYPE=RSA;IDENTITY=rsaserver.id;IDENTITY_PASSWORD=test) -x  
tcpip c:\mydemo.db
```

SAP Sybase IQ
database catalog file

Server identity file with public
certificate and private key

Server private
key password

Client connection string to IQ for RSA network encryption

```
"UID=DBA;PWD=sql;HOST=myhost;SERVER=myserver;  
ENC=tls(tls_type=rsa;trusted_certificates=public_cert.crt)"
```

Trusted certificate file

Kerberos

Kerberos is a single sign-on system for distributed environments

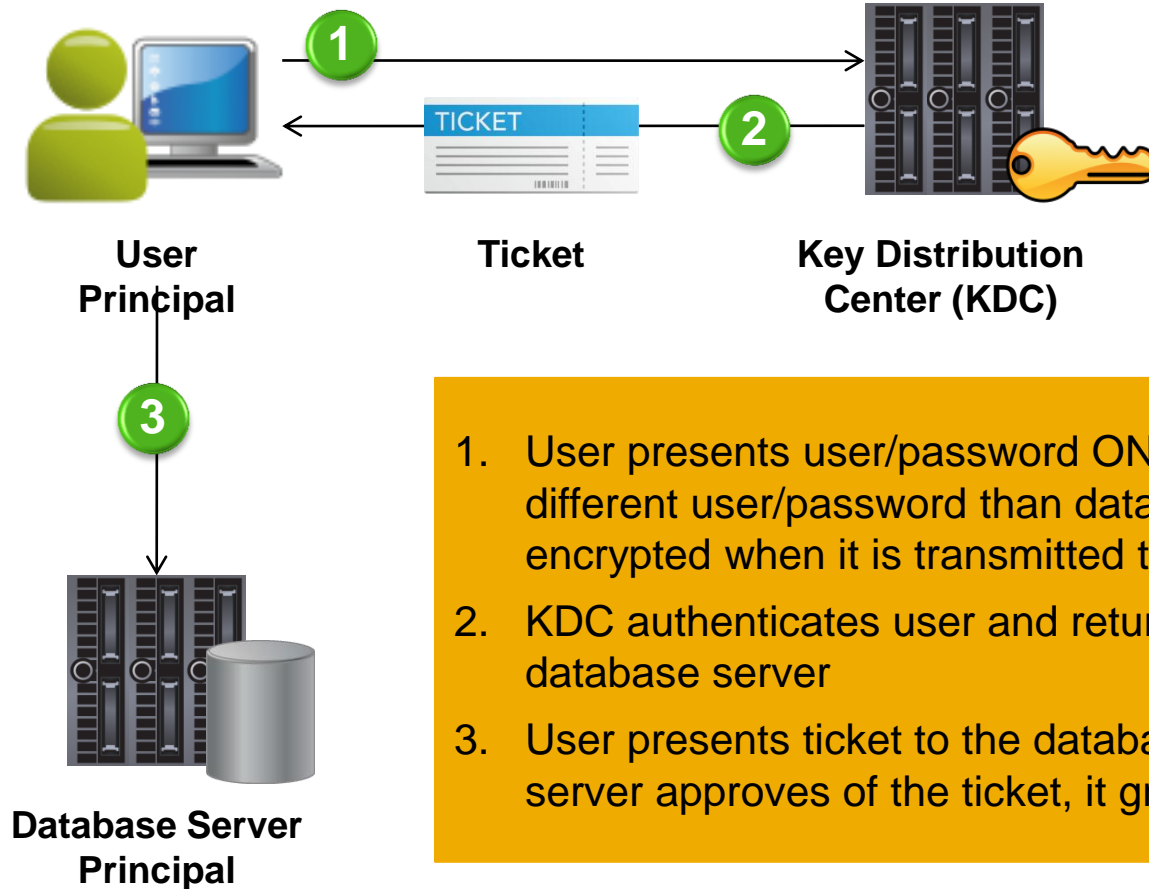
After initial authentication, eliminates the need to transmit passwords over the network

Main component of Kerberos is the Key Distribution Center

- Holds all cryptographic keys
- Provides authentication services for entities referred to as principals
- Generates tickets that users present to services they want to use

Kerberos architecture

Kerberos authentication



1. User presents user/password ONCE to KDC (may be a different user/password than database login; also, password is encrypted when it is transmitted to the KDC)
2. KDC authenticates user and returns a ticket to use the database server
3. User presents ticket to the database server, and if the database server approves of the ticket, it grants access to the user

LDAP Authentication

Integration of SAP Sybase IQ and LDAP user authentication supports:

- Authentication using searched distinguished name (DN)
- Failover to a secondary LDAP server for high availability
- Automatic failback to previously failed servers
- Integration with OpenLDAP third-party libraries
- Secure communication with LDAP servers
- Efficient design for frequent, short-lived connections
- Extensibility to multiple domains and multiple LDAP servers

Summary

SAP Sybase IQ advanced security option

Summary

Strong, FIPS certified data encryption and Kerberos authentication to secure your data assets

Learn more

- Visit: <http://www.sap.com/iq>
- Call: 1-877-727-1127 FREE ext. 11001



Thank you

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