

## Solutions for Linux on System z Prepare for: NY Metropolitan VM/Linux on System z Users Association

***PKWARE®***

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A Revolution in Managing, Moving, Storing  
and Securing Data Across the Extended  
Enterprise

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# Objectives

- **Introduce the PKWARE solutions for data reduction & GRC**
- **Briefly profile the complete PKWARE offering**
- **Focus on Linux for System z products**
- **Entertain your questions**

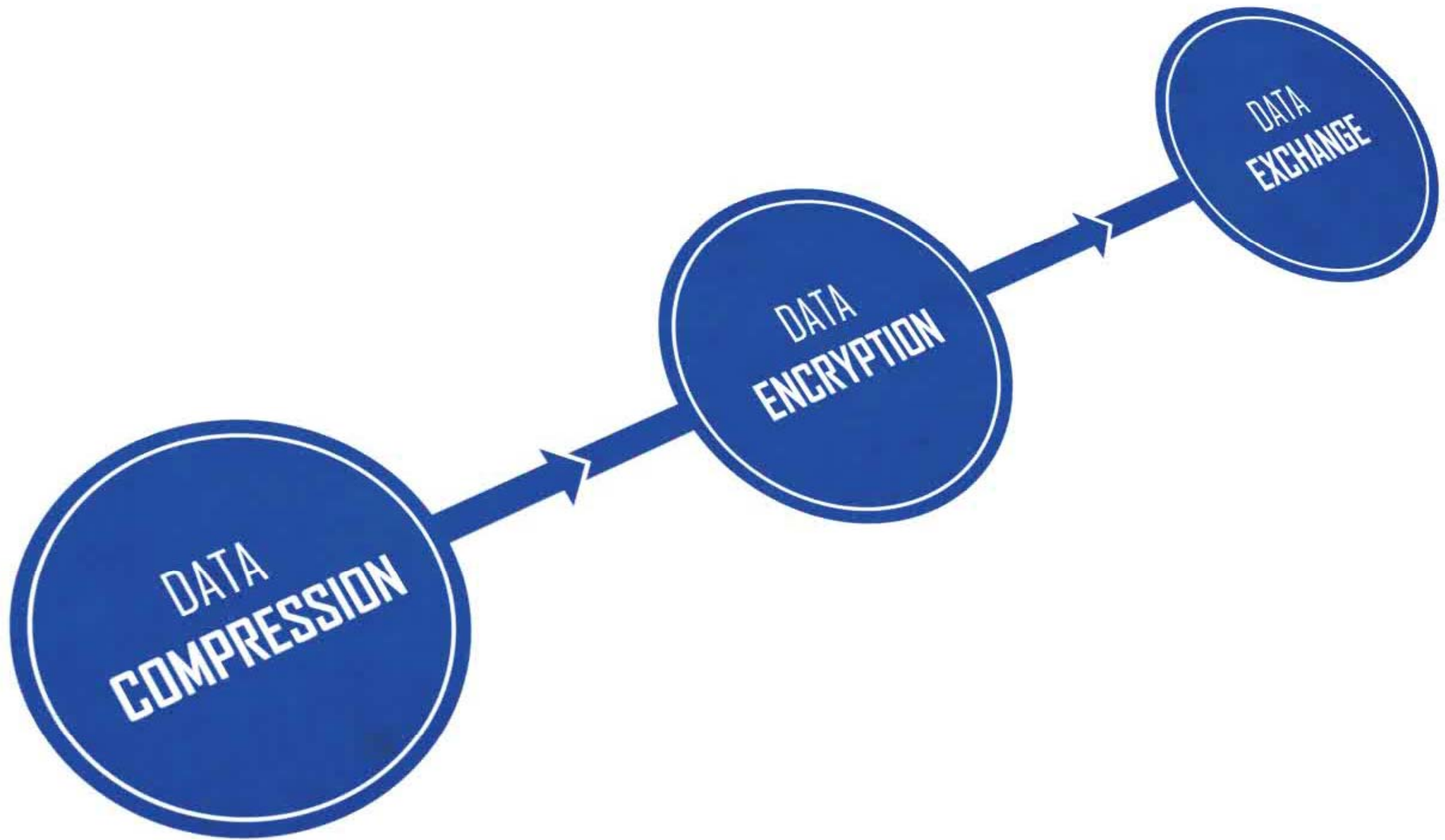
**30,000**  
corporate entities  
worldwide

**23** of the top **25**  
global banks

over **200**  
government  
agencies

**T**wenty-five years ago PKWARE invented the ZIP file format. It quickly became the industry standard for file compression across many platforms.

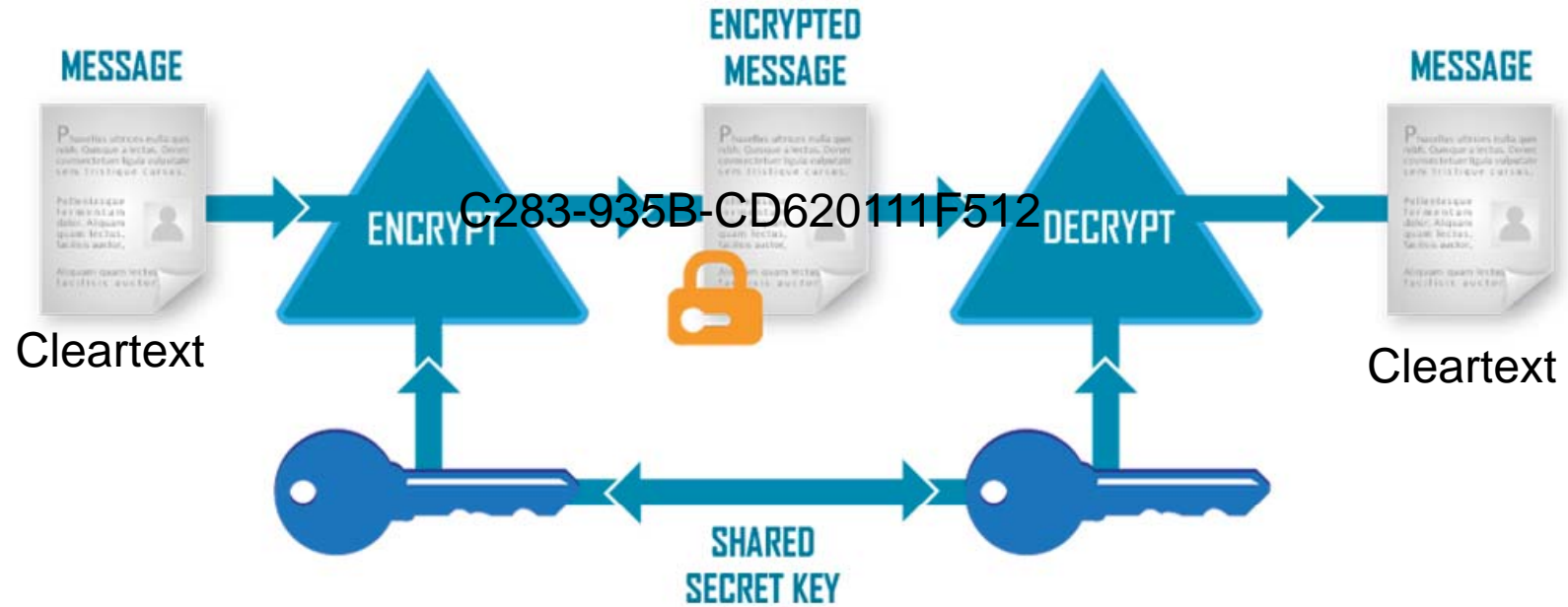
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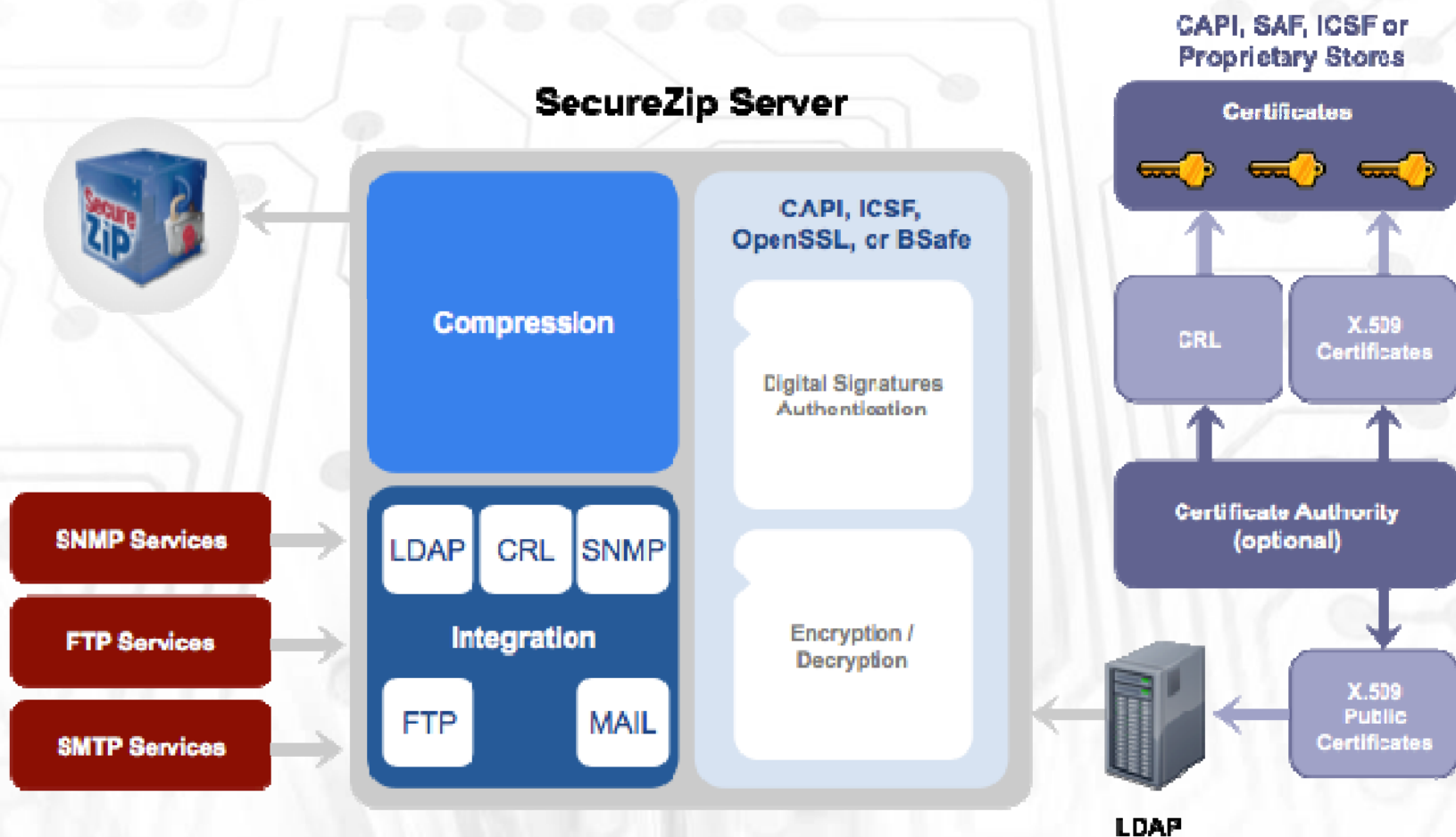


# Symmetric Key Encryption

- Symmetric Key Encryption



# SecureZIP Architecture



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# Asymmetric Key – Public Key

What is a public/private key pair?

In cryptography, a public/private key pair is a pair of keys that are mathematically related such that data encrypted using one can only be decrypted using the other member of the pair. One is distributed freely (the “public” key”) while the other is held very securely by the owner (the “private” key).



Bob



(Bob's public key)



(Bob's private key)

Bob's Co-workers:



Alice



Doug



Susan



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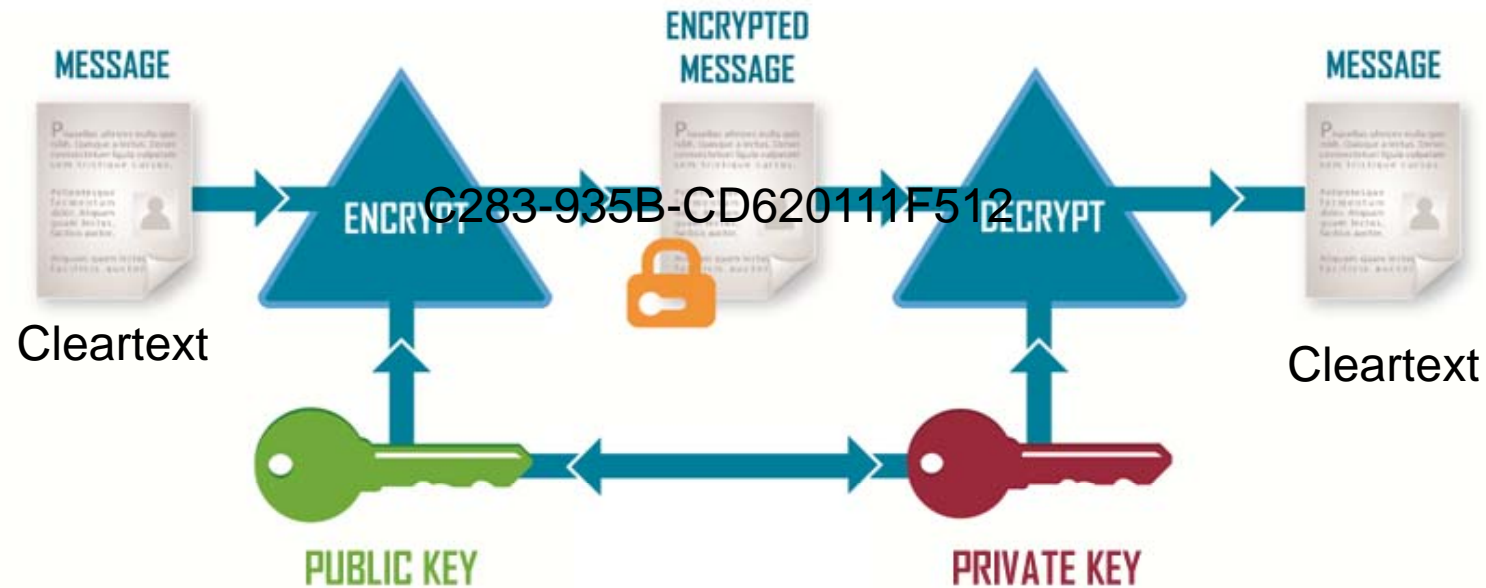


# Asymmetric Key Encryption Overview



# Asymmetric Key Encryption

- Asymmetric Key Encryption



# What is Needed for Public Key?

## What is a digital certificate?

A digital certificate is a data construct that binds an identity to a public key, paired with a separate private key, contained in a data file.



Certificate Authorities (CAs) generate keys & bind certificates to them.

### Bob Info:

Name

Department

Cubical Number

### Certificate Info:

Expiration Date

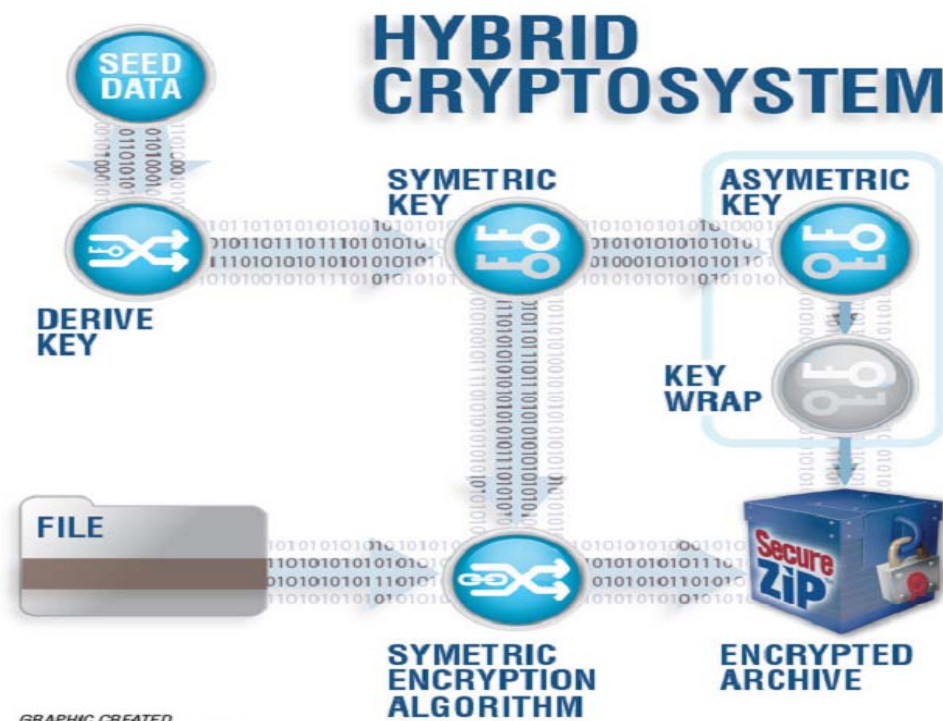
Serial Number

### Bob's Public Key:



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# SecureZIP Data Encryption

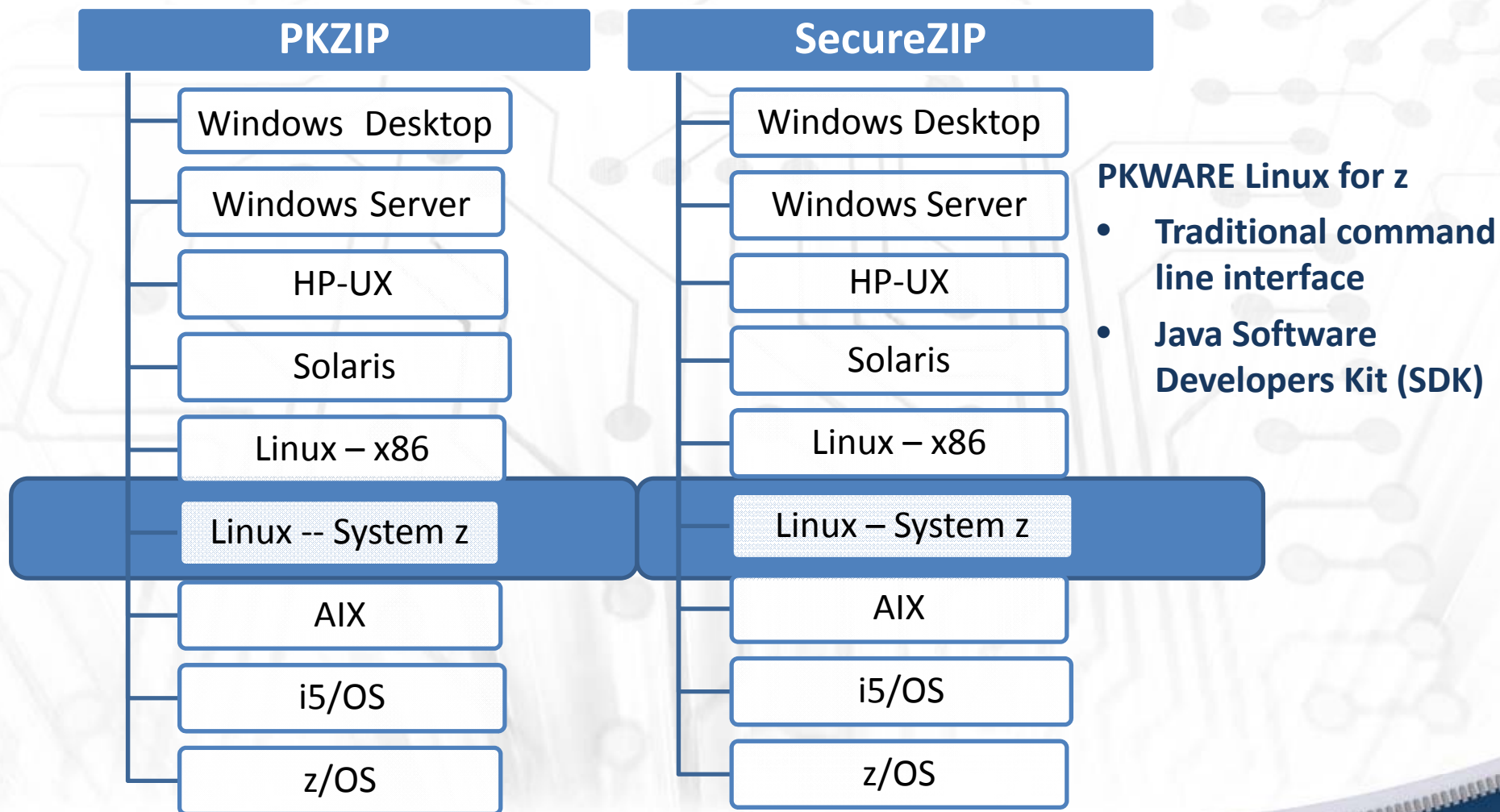


GRAPHIC CREATED  
AND PROVIDED BY PKWARE

SecureZIP is implemented as a hybrid cryptosystem.

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# PKWARE Products Portfolio



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# Case Example: Major Pharmaceutical

- **Primary order & distribution systems are legacy z/OS, generating complex customer-specific lists of medications & details**
- **Files must be compressed before transmission to customers to meet SLA/SLO**
- **High volume each month, driving z/OS peaks, increasing environment costs**
- **Transfer lists from z/OS to Linux on System z, reducing costs & improving service delivery**

# Command Line Example...

```
tessa>pkzipc -add -cryptalgorithm=aes,256 -  
passphrase=testtest lastlog.zip /var/log/lastlog
```

SecureZIP(R) Server Version 14 for Linux s390 Registered Version  
Portions copyright (C) 1989-2011 PKWARE, Inc. All Rights Reserved.  
Reg. U.S. Pat. and Tm. Off. Patent No. 5,051,745 7,793,099 7,844,579  
7,890,465 7,895,434; Other patents pending

**Strongly encrypting files with a passphrase using AES (256-bit)**

**Using UTF-8 file names and comments**

**Using default compression method**

**Updating .ZIP: lastlog.zip**

**Updating File: lastlog      Deflating    (99.8%), Encrypting, done.**

The PKWARE logo is located in the bottom right corner of the slide. It consists of the word "PKWARE" in a bold, white, sans-serif font, set against a dark blue background that is part of a zipper graphic.

# Command Line Example...

**tessa>pkzipc -view lastlog.zip**

SecureZIP(R) Server Version 14 for Linux s390 Registered Version  
Portions copyright (C) 1989-2011 PKWARE, Inc. All Rights Reserved.  
Reg. U.S. Pat. and Tm. Off. Patent No. 5,051,745 7,793,099 7,844,579  
7,890,465 7,895,434; Other patents pending

**Viewing .ZIP: /home/joe\_s/lastlog.zip**

| Length Method | Size  | Ratio | Date       | Time  | CRC-32   | Mode  | Name    |
|---------------|-------|-------|------------|-------|----------|-------|---------|
| -----         | ----  | ----- | -----      | ----- | -----    | ----- | -----   |
| 570KB DeflatN | 1238B | 99.8% | 09/12/2011 | 5:15p | f1433e38 | 0644* | lastlog |
| -----         | ----  | ----- |            |       |          |       | ----    |
| 570KB         | 1238B | 99.8% |            |       |          |       | 1       |

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# Case Example: National Brokerage Firm

- **Integrated SecureZIP for Linux [x86] into several workflows managing sensitive data (SSN's, CCN's, brokerage account #'s, etc.)**
- **Determined that consolidation of Linux x86 servers to Linux on System z improved system up-time and availability, reduced TCO over time**
- **While some application components required replacement, SecureZIP for Linux on System z supported seamless migration of data protection**

# Java SDK conforms to platform

[All Classes](#)

**Packages**  
[com.pkware.dcl](#)  
[com.pkware.zip](#)

**Interfaces**  
[EntryFilterListener](#)  
[KeyStorePasswordListener](#)  
[PasswordListener](#)  
[PKZipArchive](#)  
[PKZipOutput](#)  
[ProgressListener](#)  
[SplitArchiveListener](#)

**Classes**  
[ContentType](#)  
[FileMatch](#)  
[ItemFilter](#)  
[LineTranslate](#)  
[PKSession](#)  
[PKZipCertificate](#)  
[PKZipEntry](#)

Class Hierarchy (PKWARE ZIP SDK) - Windows Internet Explorer

Overview Package Class **Tree** Deprecated Index Help

PREV NEXT

FRAMES NO FRAMES

### Hierarchy For All Packages

**Package Hierarchies:**  
[com.pkware.dcl](#), [com.pkware.zip](#)

### Class Hierarchy

- java.lang.Object
  - com.pkware.zip.[ContentType](#)
  - com.pkware.zip.[FileMatch](#)
  - java.io.InputStream (implements java.io.Closeable)
    - java.io.FilterInputStream
      - com.pkware.dcl.[ExplodeInputStream](#) (implements com.pkware.zip.[PKZipArchive](#))
  - com.pkware.zip.[ItemFilter](#)
  - com.pkware.zip.[LineTranslate](#)
  - java.io.OutputStream (implements java.io.Closeable, java.io.Flushable)
    - java.io.FilterOutputStream
      - com.pkware.dcl.[ImplodeOutputStream](#) (implements com.pkware.zip.[PKZipOutput](#))
  - com.pkware.zip.[PKSession](#)
  - com.pkware.zip.[PKZipCertificate](#)

## Platform-appropriate API

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# Zip and Encrypt Data Streams

```
import com.pkware.zip...;  
FileOutputStream output = new FileOutputStream(Filename);  
PKSession session = new PKSession(key);  
PKZipOutputStream archive = new PKZipOutputStream(session,  
    output, flags);  
archive.setPassword(password.getBytes(MYKEY));  
PKZipEntry entry = new PKZipEntry(file.getPath());  
entry.setAttributes(PKZipEntry.FA_WIN_NORMAL);  
archive.putNextEntry(entry);  
archive.write(databuffer, 0 , length);  
archive.closeEntry();
```

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# A Prime Use of PKWARE Java SDK

- **Data Loss Prevention (DLP)** is a term referring to systems that identify, monitor, and protect data in use, data in motion (e.g., network actions, transfers etc), and data at rest (e.g., data storage) through deep content inspection.
- The systems are designed to detect and prevent the unauthorized use and transmission of confidential information.
- Inspection uses rules to look for content inside files that may violate appropriate use policy and flags it for action.
- Rules invoke actions on flagged information to ensure/enforce the appropriate use

# How DLP Works

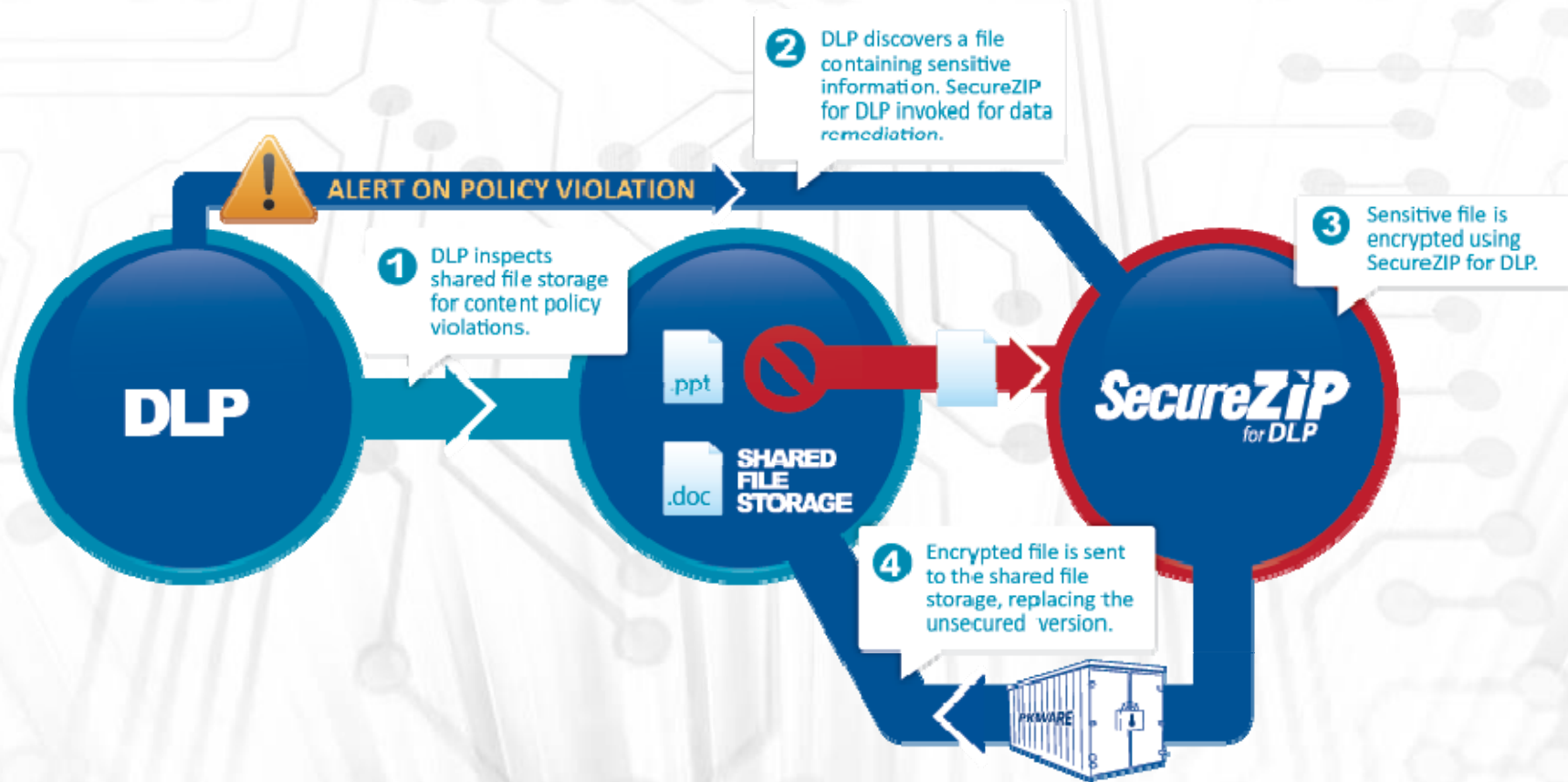
- Adapts inbound AV and Spam data inspection model to search outbound data channels to find sensitive data (**data in motion**)
  - Covers most perimeter exit points today, including email, IM, HTTP, FTP, and most protocols
  - Uses standard Block, Quarantine, Delete (BQD) actions
- We're hearing interest in scanning already encrypted data to ensure appropriate use of encryption (outbound email)
- Emerging use is for scanning internal file storage and reporting on unprotected, mostly unstructured data (**data at rest**)
  - Active – major global bank with NYC HQ; major federal agency
  - Heard from – other multinational banks; US healthcare

# DLP and Encryption

- Beyond “B-Q-D”, few DLP vendors include encryption support to protect files as they are found -- Mostly used today in data in motion scenarios
- Only limited (non-standard) support exists within DLP for encrypting data found at rest
- Interoperable encryption is a necessity to ensure encrypted data can be used in standard user workflows without disruption
  - This is why PKWARE customers called for SecureZIP integration
  - Vendors such as Symantec look to other encryption providers so they can be encryption-agnostic

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# Prime Use of SecureZIP Java SDK



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# PKWARE Products

**SecureZIP**  
PARTNERLINK

## Benefits

- ▶ *Secure data exchange with business partners based on a single solution*
- ▶ *Increase business efficiency*
- ▶ *Integrate seamlessly with existing IT infrastructures*

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## Benefits


- ▶ *Secure data everywhere, at all times*
- ▶ *Maintain control of data for audit and recovery purposes*
- ▶ *Flexible security depending on organizational infrastructure*
- ▶ *Minimize deployment and management costs*

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## Benefits

- ▶ *High ROI and improved end-user productivity with reduction in storage, network bandwidth, and processing hardware costs*
- ▶ *Ease of use enabling high rates of user adoption*
- ▶ *Simplified management through centralized policy controls*
- ▶ *Secure corporate data quickly through easy upgrade to SecureZIP*
- ▶ *Conserve storage space and reduce processing costs and file transfer time*

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**For More Information Or To Buy PKWARE Please Contact...**

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