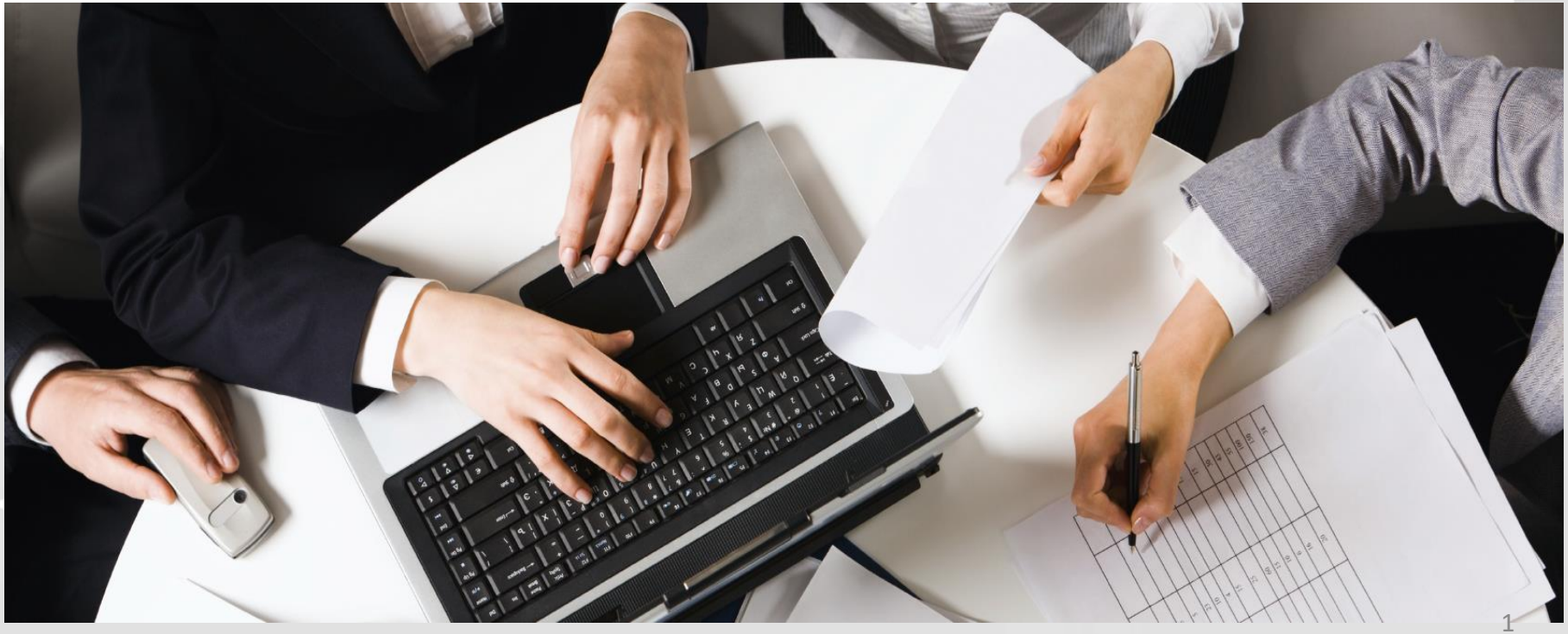
Software Diversified Services

Security Solutions for the Mainframe



Agenda

- Introductions and Company Overview
- Why is FTP so Vulnerable ?
- Options available to Secure FTP
- Live Demo of migrating to SFTP without any JCL changes
- Questions

Introductions

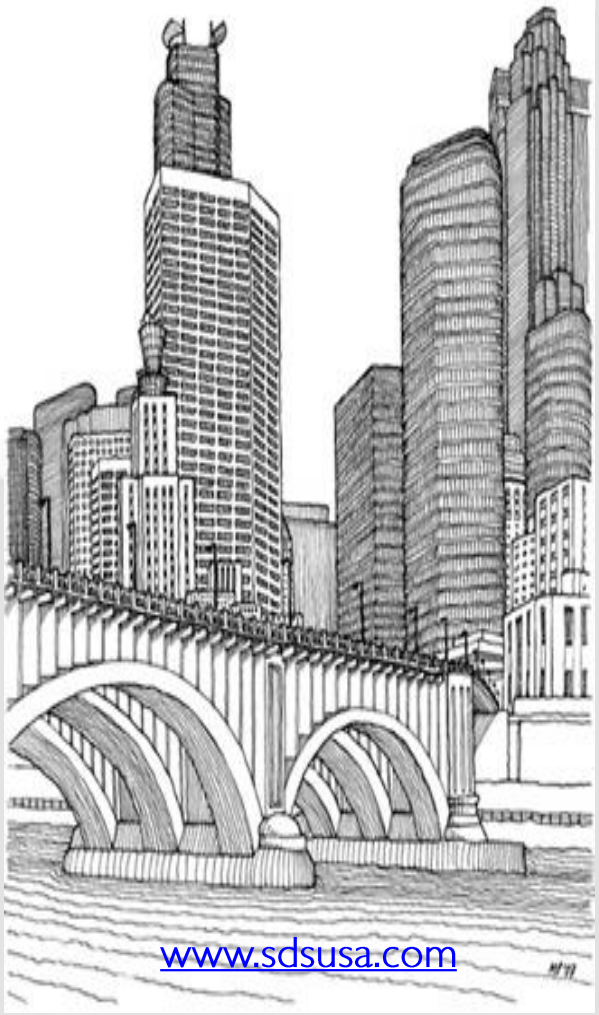
Colin van der Ross

Senior System Engineer

Software Diversified Services
Proudly Serving Enterprise Customers for Over 36 Years

- Financially Rock Solid
- Several Hundred Satisfied Licensed Customers Worldwide
- Over 20 z/OS, z/VSE and z/VM Mainframe Systems and Distributed Products
- World Class Support

  Full Time Development / Support Staff / USA
- Partner Solutions - Virtel Web Solutions, ConicIT, SSH Tectia for z/OS (Secure FTP)
- VitalSigns SIEM Agent for z/OS
- IronSphere and FIM+



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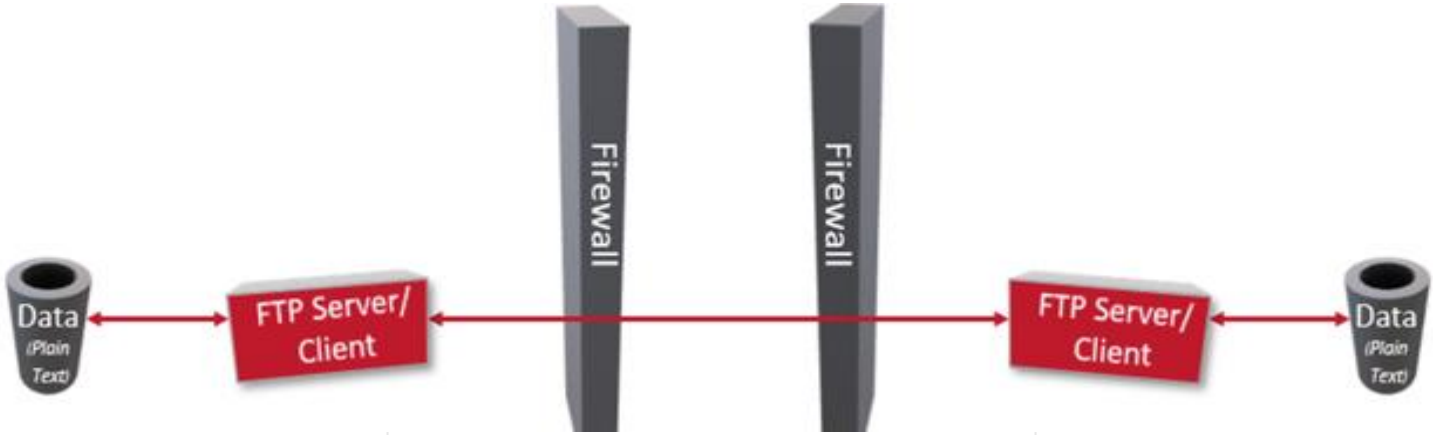
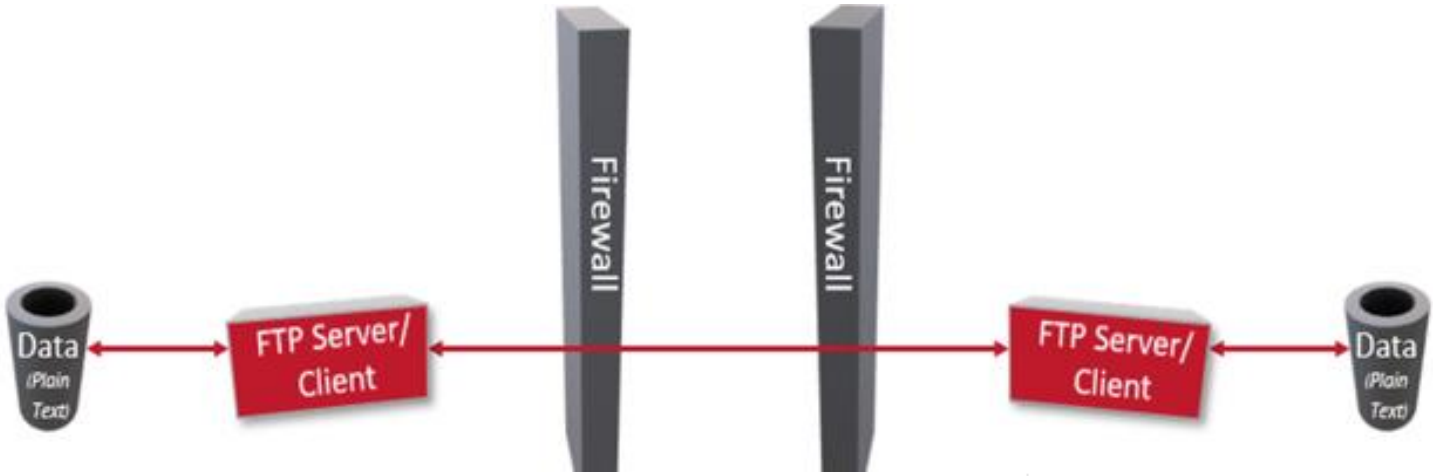
Why is FTP so Vulnerable



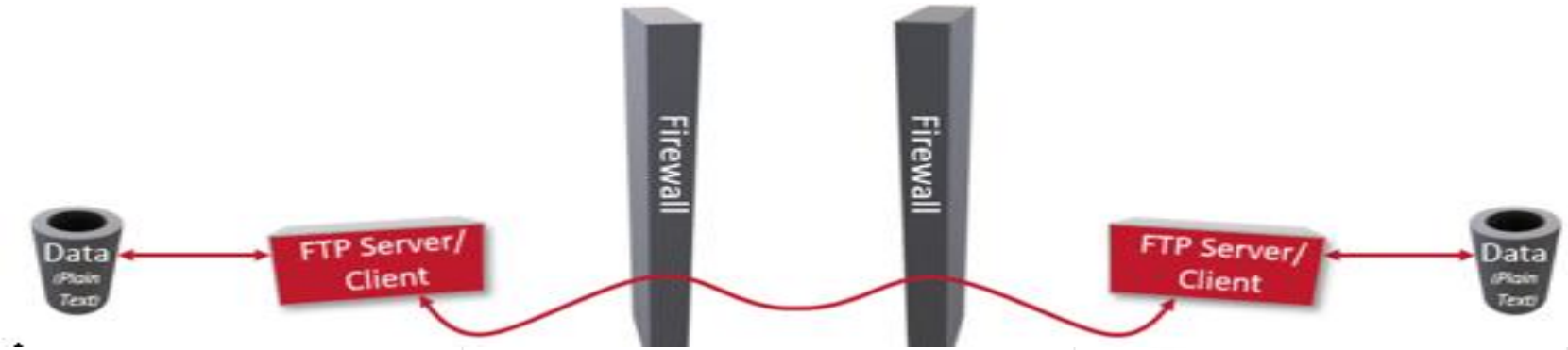
- FTP
- Ubiquitous
  - ✓ Readily available on most platforms. Client side is always ready to go, and the Server requires some configuration and can be available
- Common Knowledge
  - ✓ Been around for such a long. Easy to use. Command Syntax is simple. Almost everyone has used FTP
- Included in the OS

Why is FTP so Vulnerable



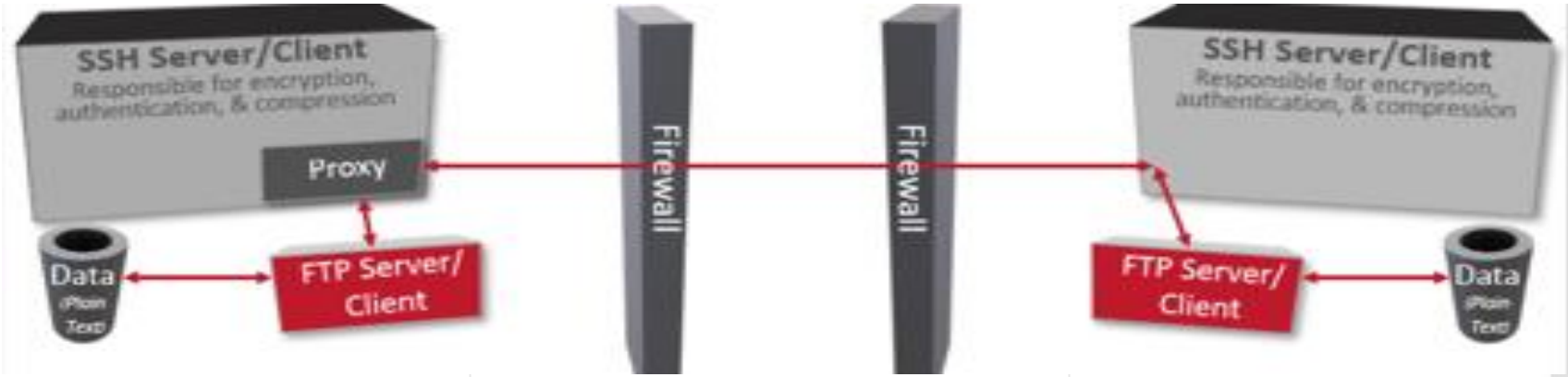
- Very Little Security
  - × FTP is a CLEAR text protocol . That means any eavesdropper can see the User IDs , password and data with the appropriate tools
- × Not Firewall Friendly
  - × Strange" protocol – designed around having 2 connections,. One for commands and the second one for the data transfers
  - × No Native compression
  - × Lacks Integrity Validation

Options available to secure FTP



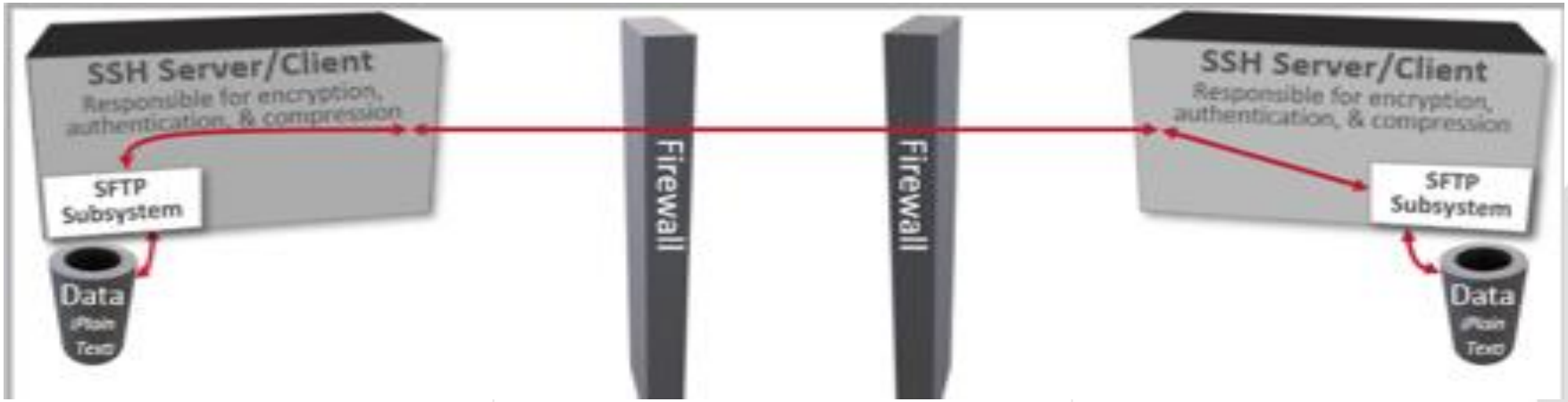
- FTPS - FTP over SSL
  - ✓ Similar to FTP
  - ✓ Included in the Base OS
  - ✓ Supports x.509 certificates
  - × Not Firewall Friendly
  - × Can't assume its available on the other end

Options available to secure FTP



- FTP over SSH Tunnel
  - ✓ Same FTP familiarity
  - ✓ Firewall Friendly
  - ✓ Compression of data
  - ✓ Good data checksums
  - × More parts need to be choreographed
  - × Requires SSH and FTP on both ends

Options available to secure FTP

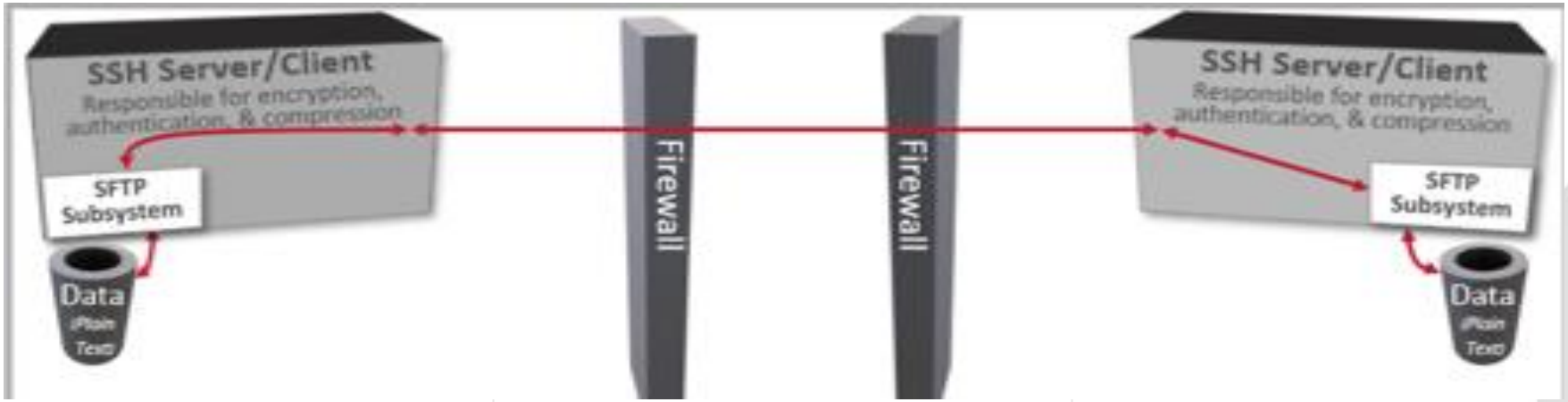


- Secure FTP (SFTP)
  - ✓ Satisfies the SFTP requirement
  - ✓ Point to Point Encryption
  - ✓ Compression / Integrity built in
  - × May not be part of your operating system
  - × May not be familiar to users
  - × Only protects the data in transit

Options available to secure FTP

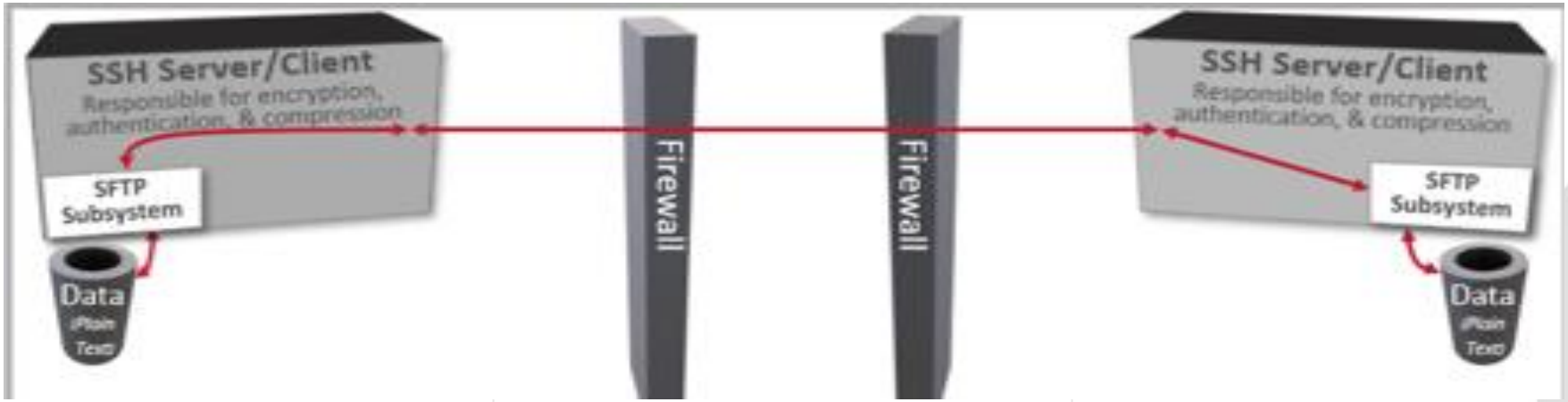
- PGP (Pretty Good Privacy)
  - ✓ Secures data at Rest not in motion
  - ✓ Full control of sensitive data
  - ✓ Compression and integrity built in
  - ✓ Not Just for transfers
  - × Requires staging

Options available to secure FTP



- <u>FTP to SFTP Conversion</u>
  - ✓ Satisfies the SFTP requirement
  - ✓ Can still use the FTP client on the z/OS side
  - × Not a perfect match

Options available to secure FTP



FTP to SFTP Conversion – Demonstration

- Tasks already completed
  - VFTP and SSH installed
  - Uploaded the remote servers public key
  - Configured the SSH Proxy to convert FTP to SFTP
  - Configured VFTP to route batch job ZFTPJOB to the SSH Proxy

FTP to SFTP Takeaways

- Surprising to see how many customers still use FTP
- Many options to consider
- Not a "one size" fits all
- Could be one solution of a combination of solutions presented here this evening
- What is the end goal ?

Questions

Agenda

- [ ] What is a SIEM?
- [ ] Demo of SMF events being sent to QRadar / Splunk
- [ ] Demo of Granular Filtering
- [ ] Suggested SMF 80- Events to monitor (as per SDS customers input)
- [ ] Questions

What is SIEM ? – Security Information & Event Management

- Security Management provides a holistic view of an organization's information technology security
- SIEM combines SIM (Security Information Management) and SEM (Security Event Management) functions into ONE Security Management System

SIEM – Security Information & Event Management

Security Information & Event Management System	
Security Event Management (SEM)	Security Information Management (SIM)
Provides - ▶ Event Management ▶ Real Time Threat Analysis ▶ Incident Detection & Response ▶ Basic ticketing capabilities ▶ Security operations	Provides - ▶ Centralized log collections ▶ Long term log collection ▶ Log search and reporting

Why SIEM?

Security Requirement

- SIEM is the core of a defense in-depth strategy
- Attackers leave behind a trace – Logs
- Security Events provide insight into
  - When the event occurred
  - Why it happened
  - What happened

Why integrate z/OS into SIEM ?

- Compliance Requirement
  - PCI, SOX, HIPAA,GLBA, etc
- Mainframe contains Sensitive data
  - Large corporations have 70% of data on Mainframes
- z/OS is not invulnerable
- You already have a SIEM, why not use it for your mainframes ?

SIEM – One view of your entire Enterprise

- A Enterprise SIEM collects / aggregates logs from heterogeneous sources
  - Databases
  - Routers
  - Switches
  - Other SYSLOG devices
- All in ONE central location

SIEM – One view of your entire Enterprise

- Makes searching easy
  - Exact Time
  - Corresponding Security Event
  - Who
  - When
  - Location

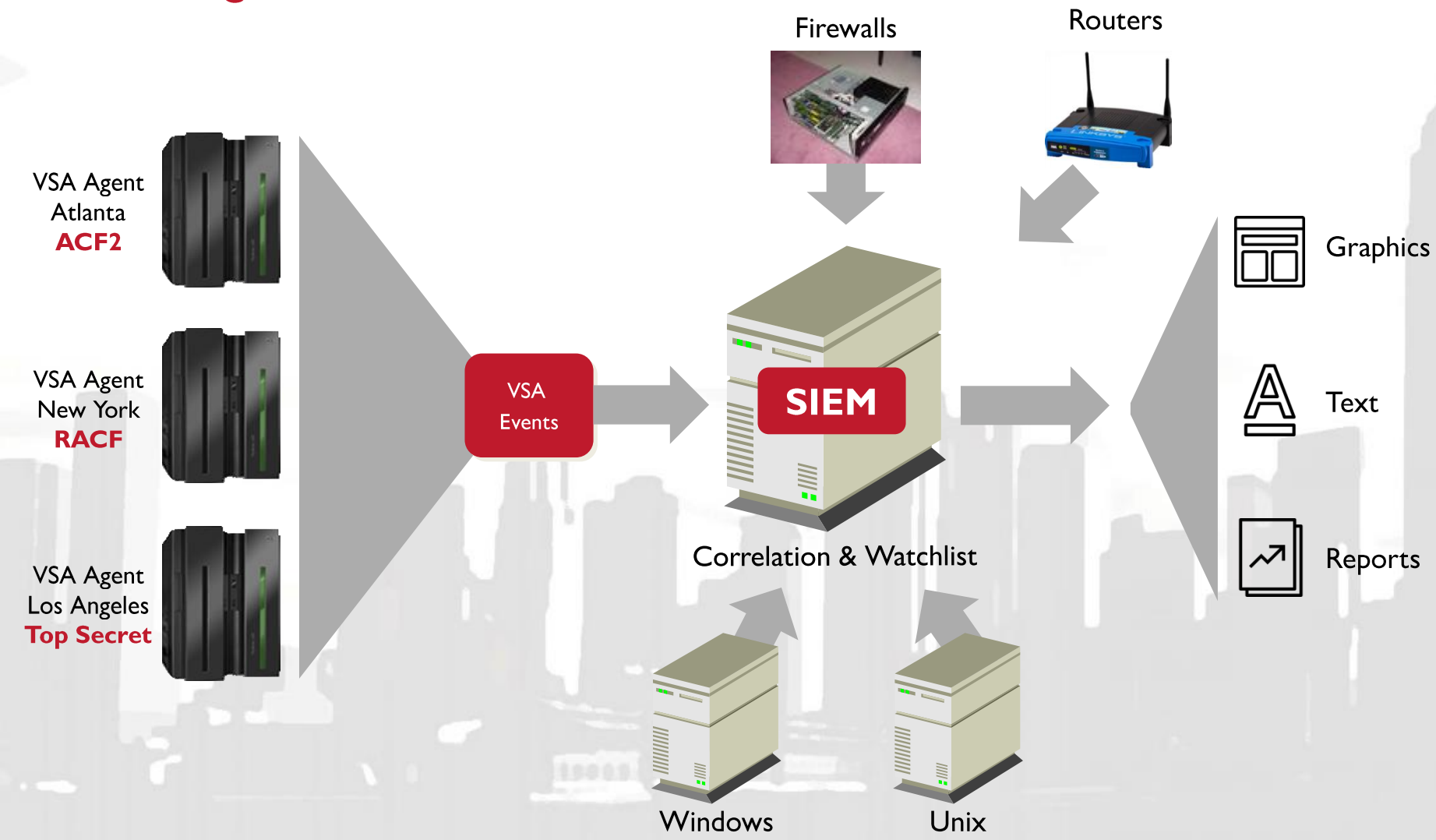
SIEM – One view of your entire Enterprise

- Configure Rules
- Kick off scripts
  - Based on thresholds
  - Conditions
  - Violations
  - Anomalies

SIEM – One view of your entire Enterprise

- Historical Data
- Compliance Requirements
- Logs are tampered proof

VSA Integration



SMF Types Monitored by VSA

- Record Type 14 (0E) -- INPUT or RDBACK Data Set Activity
- Record Type 15 (0F) -- OUTPUT, UPDAT, INOUT, or OUTIN Data Set
- Record Type 17 (11) -- Scratch (delete) of Data Sets
- Record Type 18 (12) -- Rename of Data Sets
- Record Type 30 (1E) -- JOB/STEP TERMINATION (BATCH, TSO, STARTED TASK)
  - TYPE30_I: Job Initiation
  - TYPE30_4: Step Termination
  - TYPE30_5: Job or Session Termination
  - TYPE30_6: System Address Space
  - TYPE30_D: DD Segment Detail
  - TYPE30_V: Interval Accounting

SMF Types Monitored by VSA

- Record Type 32 (20) -- Termination of TSO Session (Often = 30)
- Record Type 42 (2A) – System Managed Storage (SMS) PDS/E activity
  - Subtype 20 – STOW initialization (delete all members)
  - Subtype 21 – Delete member
  - Subtype 24 – Add or Replace member
  - Subtype 25 – Rename member
- Record Type 62 (3E) – VSAM OPEN
- Record Type 80 (50) -- RACF Security (Events 1-89; DataTypes 1-438)
- Record Type 81 (51) – RACF Initialization and SETOPTS
- Record Type 83 (53) -- RACF Security Audit Records

SMF Types Monitored by VSA

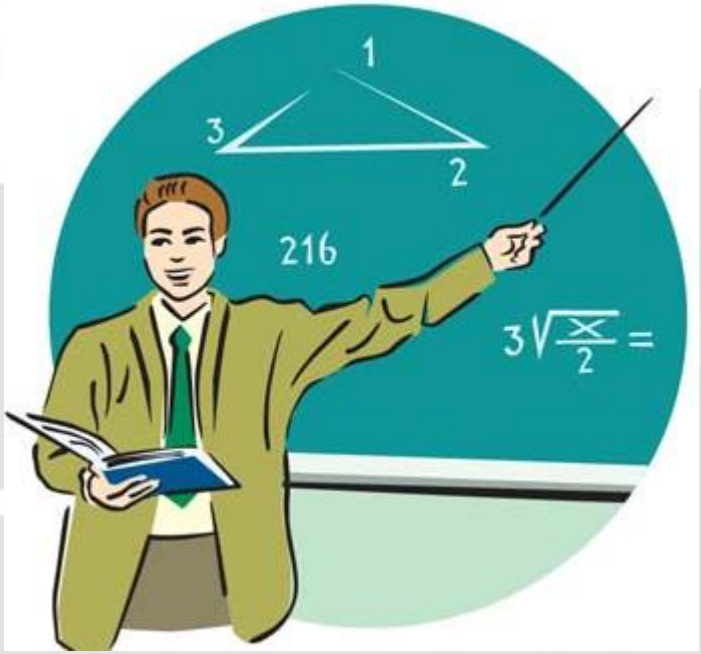
- Record Type 90 (5A) Changes to APF Authorized Library List(z/OS 2.2)
- Record Type 92 (5C) -- Open/MVS File System activity
  - Subtype 1 - when a file system is mounted
  - Subtype 2 - after the file system is quiesced or suspended
  - Subtype 4 - after the file system is unquiesced or resumed
  - Subtype 6 - when the file system is remounted
  - Subtype 7 - when the file system is moved
  - Subtype 10 - when a file is opened
  - Subtype 11 - when a file is closed
  - Subtype 12 - MMAP subtype information
  - Subtype 13 - MUNMAP subtype information
  - Subtype 14 - File/directory delete
  - Subtype 15 - Security attributes changed
  - Subtype 16 - Socket/char spec close (same as 11)
  - Subtype 17 - File accesses

SMF Types Monitored by VSA

- Record Type 102 (66) - DB2 Database Audit (Classes 1-11; Admin actions)
- Record Type 109 (6D) – SyslogD
- Record Type 119 (76) - TCP/IP, Telnet,FTP, FTP Client, UDP Close, TN3270
  - TCPTerm 2 - TCP Connection Termination
  - FTPClient 3 - FTP Client Transfer Completion
  - StackSS 8 - TCP/IP Stack Start/Stop
  - UDPClose A - UDP Socket Close
  - TNSvrTerm 15 - TN3270 Server SNA Session Termination
  - TSOCTerm 17 - TSO Telnet Client Connection Termination
  - FTPServer 46 - FTP Server Transfer Completion
  - FTPLogonF 48 - FTP Server Logon Failure

Demonstration of SMF Events sent to QRadar and Splunk

AND SMF Granular Filtering



Suggested SMF Events to Monitor
Input from existing SDS VSA customers

Questions

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