



**GO ANYWHERE**<sup>®</sup>  
Managed File Transfer

# IBM i Webinar: Simplify and Protect Your File Transfers

# Introductions



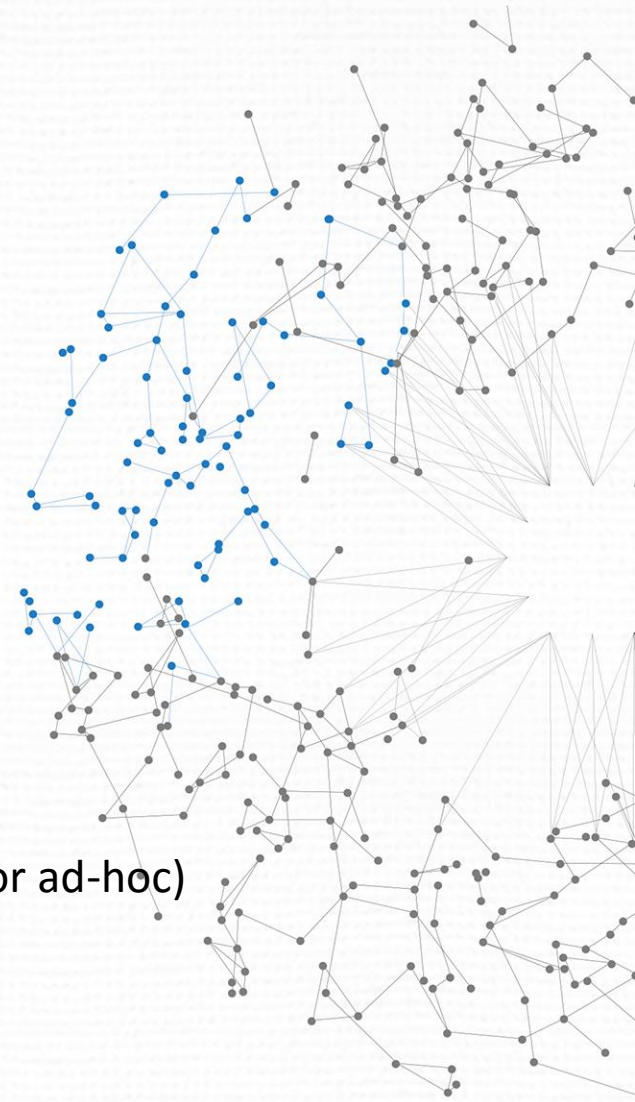
**Bob Luebbe, CISSP**  
*Chief Architect*



**Dan Freeman, CISSP**  
*Senior Solutions Consultant*

# AGENDA

1. Company Overview
2. Secure protocols (SFTP, FTPS, AS2) to protect transmissions
3. Encrypt files using Open PGP or ZIP/AES standards
4. Problems with traditional file transfer methods
5. Introduction to GoAnywhere
  - Secure files in motion and at rest
  - Move files between IBM i and other systems easily
  - Send alerts when file transfers fail
  - Provide a web portal for vendors/customers (for ad-hoc)
  - Audit all file transfer activity
6. Feel free to ask questions in the control panel



UP NEXT

# Company Overview



Tech solutions. Human support.

- ▶ Over 35 years in business
- ▶ Focused on security, automation and operations management
- ▶ 550 employees in twenty offices around the world
- ▶ Active R&D team for GoAnywhere® solution
- ▶ Pride ourselves on excellent customer service
- ▶ Almost 99% of GoAnywhere customers renew their maintenance each year
- ▶ Member of the PCI Security Standards Council

# Options for Securing Data



## **File Encryption only:**

Encrypt the file with a password (e.g. Zip with AES) or with a key (e.g. OpenPGP), then send over standard FTP or email



## **Connection Encryption only:**

Send the unencrypted file over an encrypted connection (e.g. Secure FTP, HTTPS, AS2, SMIME, etc.)

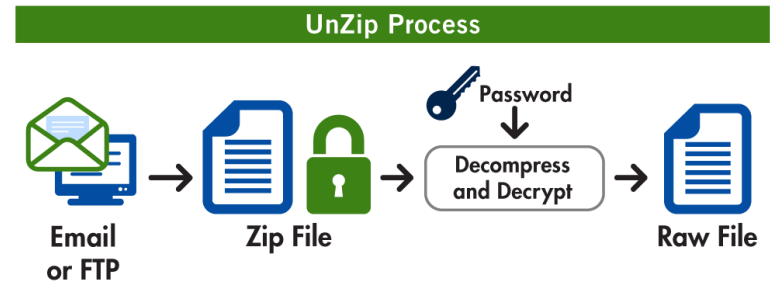
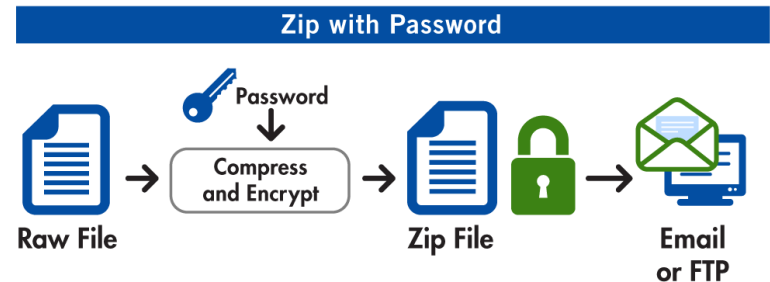


## **File and Connection Encryption:**

Encrypt the file with a password or key, then send over an encrypted connection

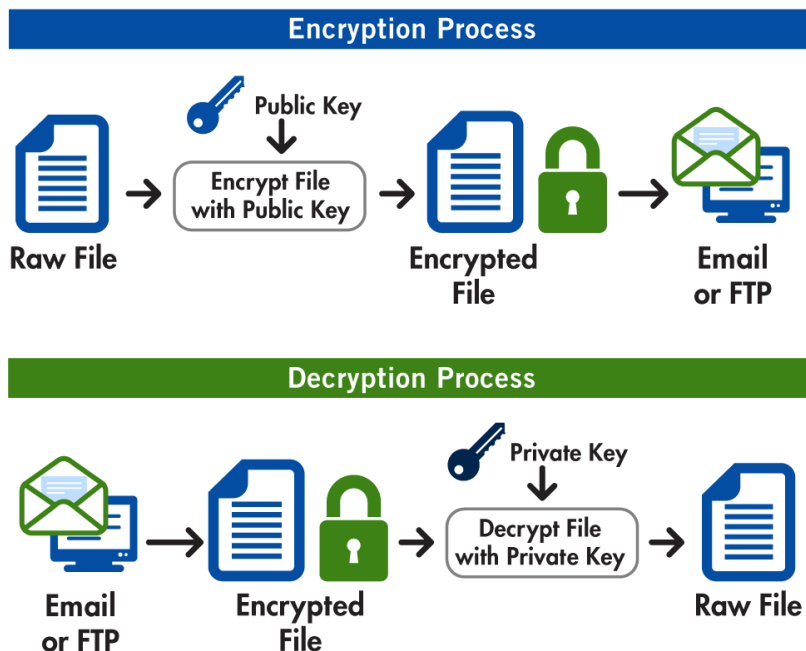
# ZIP Compression/Encryption

- ▶ Can encrypt and compress multiple files into a single package
- ▶ Password protection with AES encryption
- ▶ Strength of password is critical to avoid brute-force attacks
- ▶ Need to share passwords with trading partners securely
- ▶ Number of ZIP compatible products



# Open PGP Encryption

- ▶ Widely used for protecting files to be sent over the internet.
- ▶ Encrypt with Public Key -- Decrypt with Private Key (Secret Key)
- ▶ Many products available that support OpenPGP
- ▶ Latest standard is RFC4880 (see <http://www.ietf.org/rfc/rfc4880.txt>)



## TERMS

**OpenPGP** standard is a non-proprietary and industry-accepted protocol which defines the standard format for encrypted messages, signatures and keys.

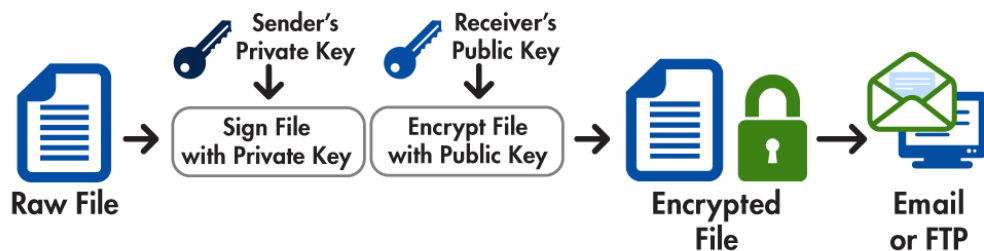
**Private Key** is the portion of a Key Pair which is used by the owner to decrypt information and to encode digital signatures. The Private key, typically protected by a password, should be kept secret by the owner and NOT shared with trading partners. Also known as a Secret Key.

**Public Key** is the portion of the Key Pair which is used to encrypt information bound for its owner and to verify signatures made by its owner. The owner's Public key should be shared with its trading partners.

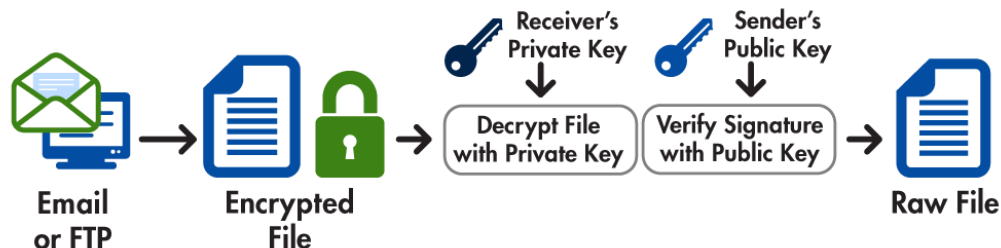
# Open PGP Signatures

- ▶ A Digital Signature is used to authenticate the Sender
- ▶ Sign with Private Key
- ▶ Verify with Public Key

## Sender - Signing and Encryption Process



## Receiver - Decryption and Verification Process



### TERMS

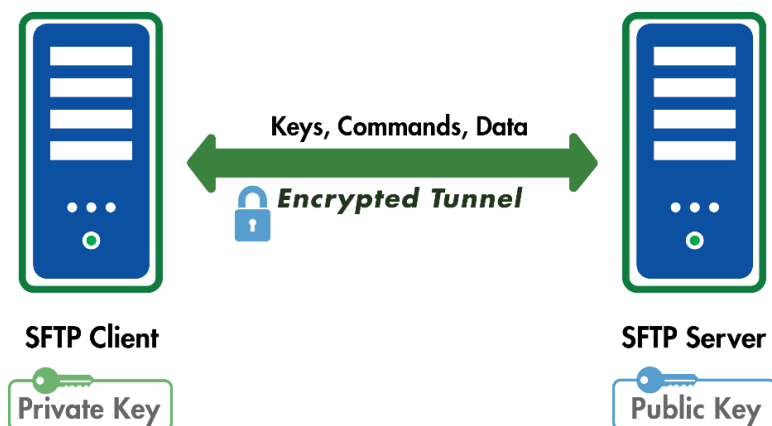
**Digital Signature** is an electronic signature which is encoded into a document using the sender's Private key. This signature can be authenticated by the recipient using the sender's Public key. An authenticated signature will ensure the original content of the document has not been altered by an unauthorized party.



- ▶ **Authentication** - Secure FTP allows computer systems to ensure the identity of each other.
- ▶ **Data Privacy** - Secure FTP creates an encrypted connection between computer systems, preventing the interception of users, passwords and data.
- ▶ **Data Integrity** - Secure FTP implements hash functions to ensure that data was not modified in transit.
- ▶ **Two types of Secure FTP:**
  - ▶ SFTP = FTP over SSH
  - ▶ FTPS = FTP over SSL/TLS

# SFTP

- ▶ SFTP = FTP over SSH
- ▶ SFTP encrypts the entire connection between the client and the server
- ▶ Initially was popular in UNIX and LINUX systems
- ▶ Supports dual-factor authentication using a combination of a SSH key and a user/password



## TERMS

**SSH** is an abbreviation for Secure Shell. SSH is both a computer program and an associated network protocol designed for encrypting communications between two untrusted hosts over a network. It utilizes Public keys to provide asymmetric cryptology.

- ▶ FTPS = FTP over SSL/TLS
- ▶ Protects entire connection, including data, users passwords, commands, etc.
- ▶ Explicit and Implicit FTPS are both supported
- ▶ Supports dual-factor authentication using a combination of a certificate and a user/password



## TERMS

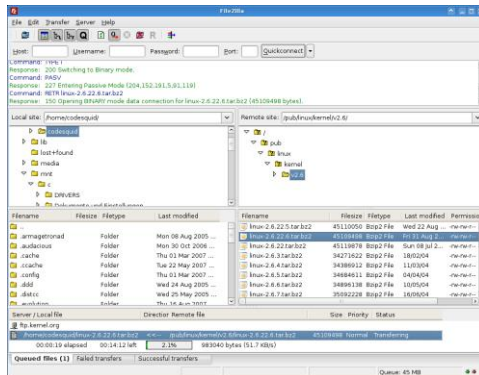
**SSL** is an abbreviation for Secure Sockets Layer. SSL is a security protocol for encrypting communications between two hosts over a network. SSL utilizes certificates to establish trust between the two hosts.

**TLS** is the abbreviation for Transport Layer Security and is the successor to SSL.

# Traditional File Transfers



## Manual Processes



## PC Tools

```
HOST='192.168.1.54'  
PORT='10021'  
USER='user1'  
PASSWD='s3cr3t'  
FILE='user_log.log'  
LDIR='/home/test'  
  
echo "Running FTP transfer from $HOST"  
ftp -n $HOST $PORT <<END_SCRIPT  
quote USER $USER  
quote PASS $PASSWD  
passive  
lcd $LDIR  
get $FILE  
quit  
END_SCRIPT
```

## Legacy Scripts

- Decentralized
- Unsecured
- No Alerts
- Limited Controls
- No Audit trails



## Email



## USB

# FTP Scripts

- ▶ FTP Scripts have to be written by Programmers
- ▶ Have to be maintained by Programmers:
  - ▶ When host names and IP addresses change
  - ▶ When user ids and passwords change
  - ▶ When file names change
- ▶ No inherent auto-retry or auto-resume
- ▶ Difficult to know when it fails
- ▶ Can become complex as you add more trading partners

```
HOST='192.168.1.54'  
PORT='10021'  
USER='user1'  
PASSWD='s3cr3t'  
FILE='user_log.log'  
LDIR='/home/test'
```

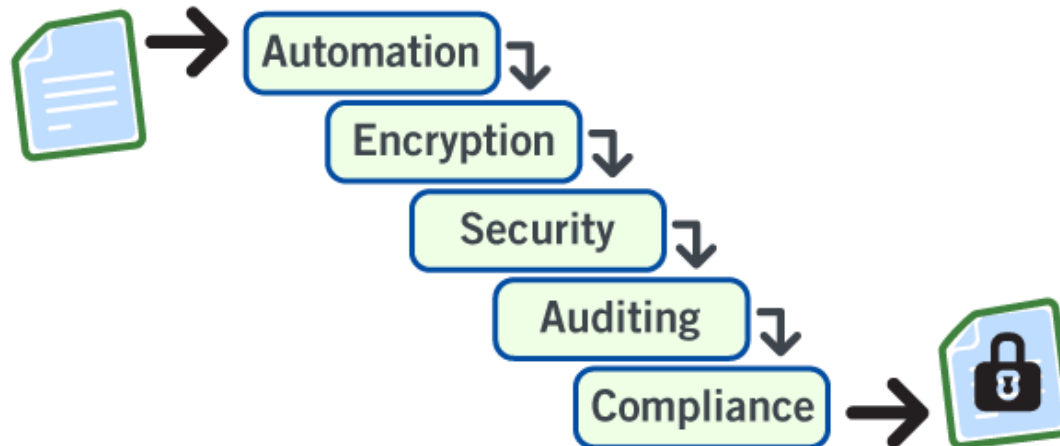
```
echo "Running FTP transfer  
from $HOST"  
ftp -n $HOST $PORT  
quote USER $USER  
quote PASS $PASSWD  
passive  
lcd $LDIR  
get $FILE  
quit
```

# What is Managed File Transfer

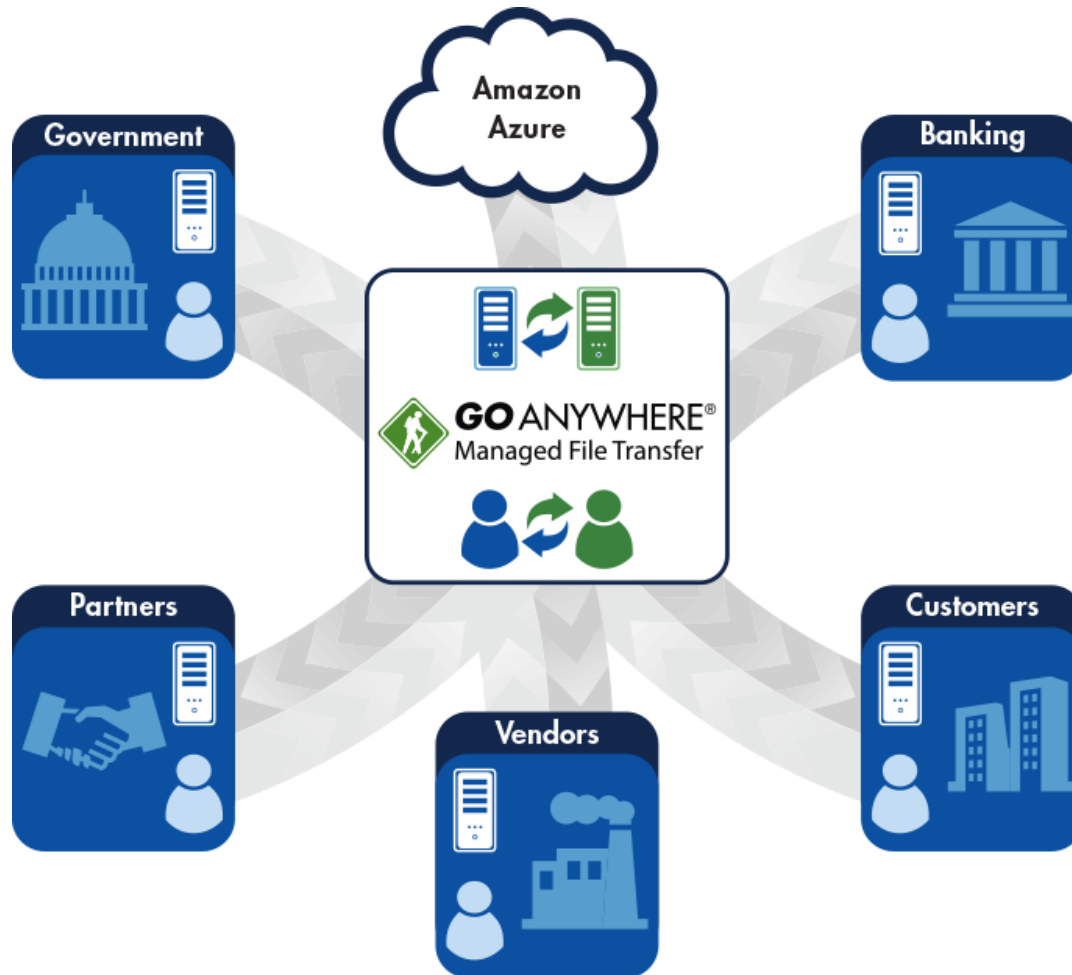
**File Transfer** = Sharing files with others



**Managed File Transfer** = Automating and Securing file transfers using a centralized enterprise-level approach.



# GoAnywhere Overview



# GoAnywhere Overview





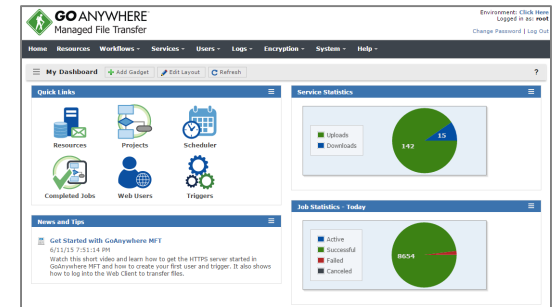
# GoAnywhere Agents



# Enterprise Features

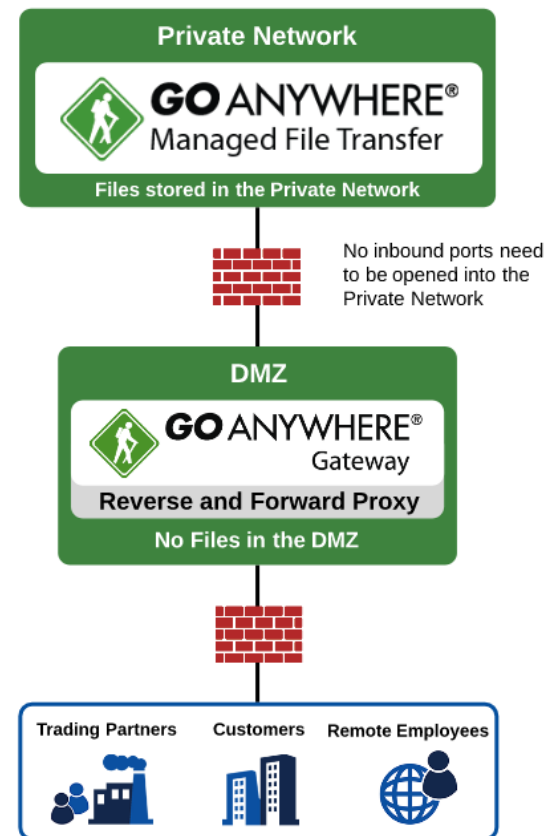


- ▶ **Multiplatform** - Installs to most operating systems including IBM i, Windows, Linux, AIX, UNIX, Amazon and Azure.
- ▶ **Batch and Ad Hoc** - Allows organizations to perform both scheduled batch transfers and user-to-user file sharing.
- ▶ **Auditing** - Generates detailed audit logs of all file activity including batch, ad hoc, inbound and outbound transfers.
- ▶ **Interface** - Provides a browser-based interface for all administration and monitoring. No desktop client is needed.
- ▶ **Inbound Services** - Allows inbound connections from trading partners over SFTP, FTP/S, HTTPS and AS2 (Drummond Certified).
- ▶ **Encryption** - Protects files at-rest and in-motion with FIPS 140-2 validated AES-256 encryption.
- ▶ **Key Management** - Provides integrated tools for creating and managing Open PGP keys, SSH keys and SSL certificates.
- ▶ **Admin Controls** – Implements role-based administration, security domains and granular permission controls.



# Enterprise Features

- ▶ **Private Cloud** – Eliminates the need for public file sharing services like Dropbox, Box, Google Drive and OneDrive.
- ▶ **Customer Portal** – Allows you to provide custom-branded web interfaces for secure file transfers over HTTPS.
- ▶ **Secure Mail** – Allows employees to send large or confidential files through secure email links. Includes an Outlook plugin.
- ▶ **Two-Factor** - Authenticates with user credentials and SAML, RSA SecurID, RADIUS, SSH keys or X.509 certificates.
- ▶ **DMZ Gateway** - Keeps services and files in the private network (out of the DMZ) without requiring inbound ports.
- ▶ **Job Control** - Provides extensive job management features including job queues and run priorities.
- ▶ **File Transfer Acceleration** - Enables high speed transmission of large files between systems using UDP channels.
- ▶ **Clustering** - Provides high availability and load balancing by connecting two or more instances together in a cluster





# DEMO

# Additional Security Features

## ▶ Secure Protocols

- ▶ SFTP – SSH File Transfer Protocol
- ▶ FTPS – FTP over SSL/TLS
- ▶ SCP – Secure Copy
- ▶ HTTPS – HTTP over SSL
- ▶ Open PGP / GPG
- ▶ ZIP with password protection
- ▶ Encrypted email (SMIME)
- ▶ AS2



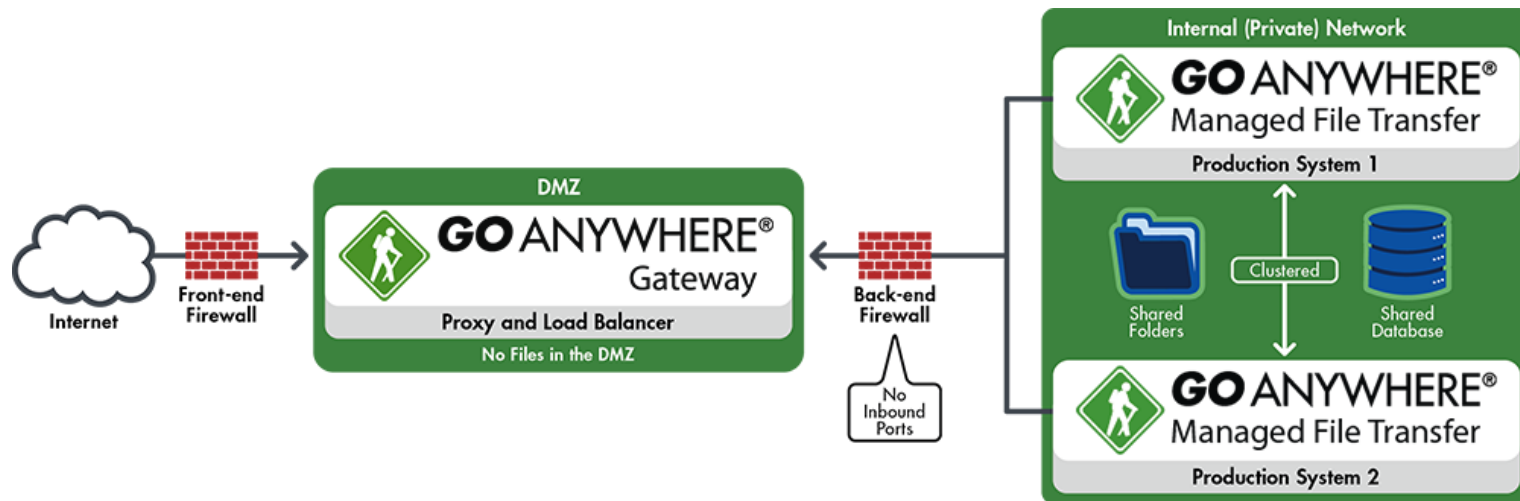
- ▶ AES encryption (key lengths of 128, 192, 256) – NIST standard
- ▶ SSL protected console
- ▶ Helps meet compliance for PCI-DSS, HIPAA, FIPS 140-2, Sarbanes Oxley, GLBA and State Privacy Laws

# GoAnywhere Gateway

## Overview

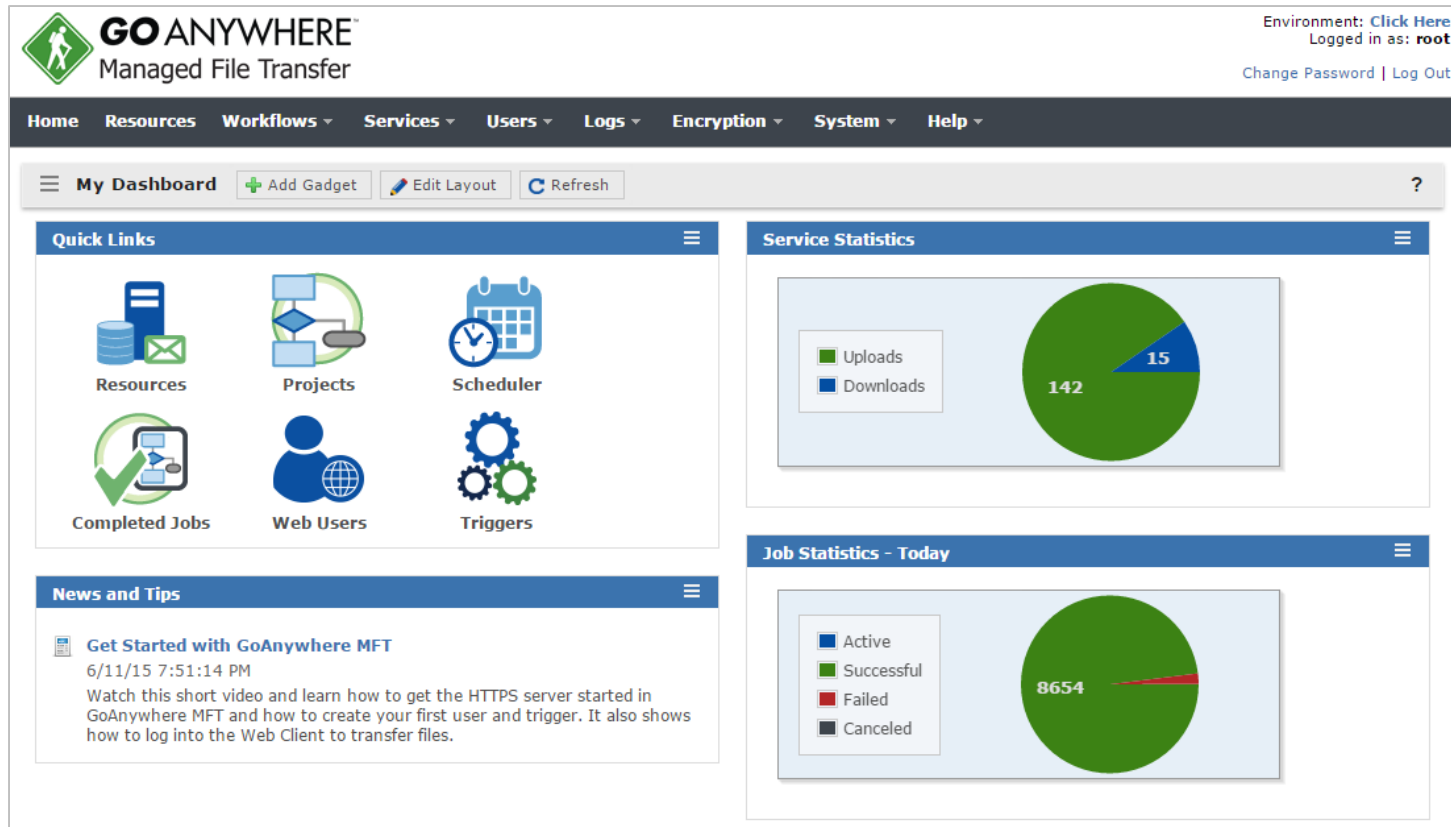


- ▶ No incoming ports are opened into the private (internal) network
- ▶ No sensitive files are stored in the DMZ
- ▶ User credentials are maintained/stored in the private network
- ▶ Supports FTP/s, SFTP, SCP and HTTP/s file transfer protocols
- ▶ No special hardware components; software-only solution
- ▶ Installs to Windows, Linux, AIX, UNIX and Solaris operating systems



# GoAnywhere Administrator

- ▶ Browser-based Dashboard
- ▶ Intelligent Gadgets
- ▶ Drag-n-Drop
- ▶ Latest HTML5 Technology

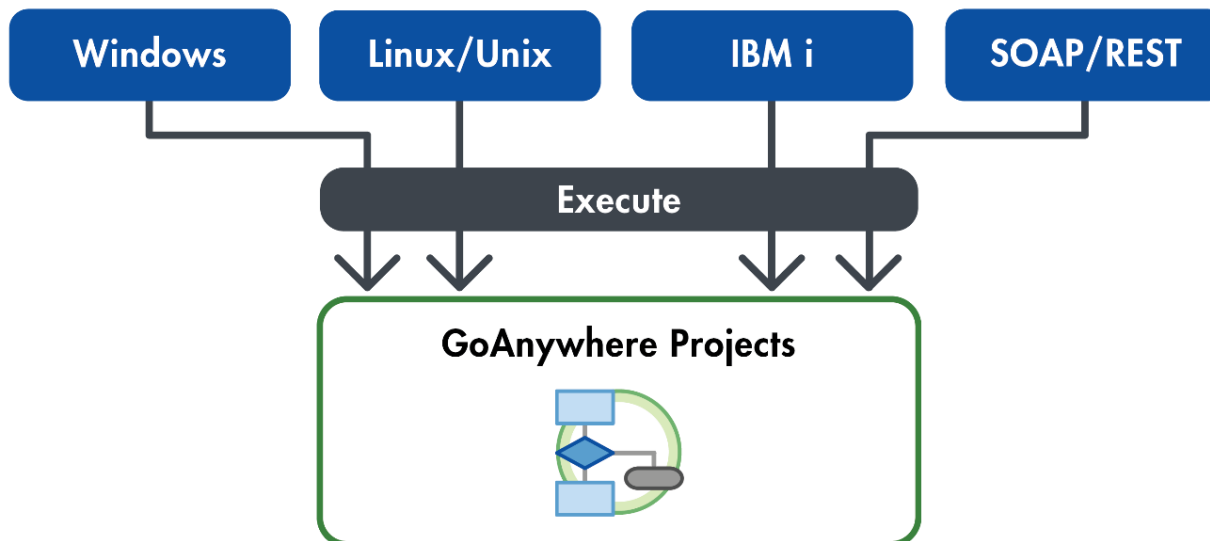


The screenshot displays the GoAnywhere Administrator dashboard. At the top left is the GoAnywhere logo and the text "GO ANYWHERE Managed File Transfer". At the top right, it shows "Environment: [Click Here](#)" and "Logged in as: root", with links for "Change Password" and "Log Out". A navigation menu includes "Home", "Resources", "Workflows", "Services", "Users", "Logs", "Encryption", "System", and "Help". Below the menu is a "My Dashboard" section with "Add Gadget", "Edit Layout", and "Refresh" buttons. The dashboard is divided into four main sections:

- Quick Links:** A grid of six icons representing Resources, Projects, Scheduler, Completed Jobs, Web Users, and Triggers.
- Service Statistics:** A pie chart showing 142 Uploads (green) and 15 Downloads (blue).
- Job Statistics - Today:** A pie chart showing 8654 Successful jobs (green), with very small segments for Active (blue), Failed (red), and Canceled (gray).
- News and Tips:** A section titled "Get Started with GoAnywhere MFT" dated 6/11/15 7:51:14 PM, containing a short video description.

# Commands and APIs

- ▶ Run workflows in GoAnywhere using the provided commands and APIs
- ▶ Available for Windows, Linux, IBM i (iSeries) and UNIX
- ▶ SOAP and REST enabled
- ▶ Requests sent over HTTP/s
- ▶ Override variables
- ▶ Run interactive or batch
- ▶ Trap for errors
- ▶ Commands and APIs are provided at no additional charge





# Examples to Run a Project from CL

- ▶ Monitor for message IDs
- ▶ Any errors are placed in Job Log
- ▶ Retrieve any errors with RCVMSG command

```
0001.00  PGM
0002.00  DCL &MESSAGE *CHAR 80
0003.00
0004.00  /* Run the Transfer */
0005.00  RUNPROJECT PROJECT('/Payroll/SendDirectDeposit') +
0006.00          USER(SFIELD) PASSWORD(*****) +
0007.00          VARIABLE((StateCode NE)) PRIORITY(5)
0008.00
0009.00  /* Project failed or could not connect */
0010.00  MONMSG MSGID(GAE1002 GAE1003) EXEC(DO)
0011.00
0012.00      /* Get the error message from the program
0013.00      message queue */
0014.00      RCVMSG RMV(*NO) MSG(&MESSAGE)
0015.00
0016.00      /* Send the error to QSYSOPR */
0017.00      SNDMSG MSG(&MESSAGE) TOMSGQ(QSYSOPR)
0018.00  ENDDO
```

*RPG procedures are also available to run a Project*

# Command Line Examples to Run a Project



## Windows Example:

```
gacmd.exe -server https://192.168.1.20:8000/goanywhere/  
-user projectManager -password *****  
-command runProject  
-Project /Payroll/SendDirectDeposit  
-variables fileName "deposit.csv" folderPath "/inbound/deposit"
```

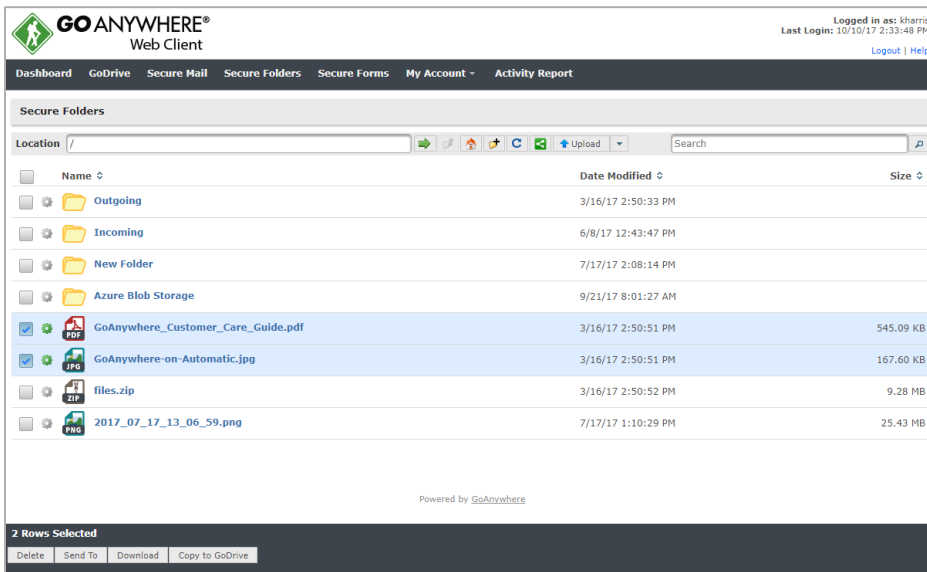
## Linux Example:

```
sh gacmd -server https://192.168.1.20:8000/goanywhere/  
-user projectManager -password *****  
-command runProject  
-Project /Orders/SendPurchaseOrders  
-variables VendorNumber "423231" Status "Open"
```

*APIs are also provided for Java and .NET*

# Inbound Services

- ▶ Allows your trading partners and employees to securely connect to your organization and easily retrieve or upload files.
- ▶ Supports transfer protocols of FTP, SFTP, SCP, FTPS, HTTPS and AS2
- ▶ Provides a browser-based web client for simple file transfers
- ▶ Includes event triggers based on user-defined conditions
- ▶ Generates detailed audit logs and alert messages

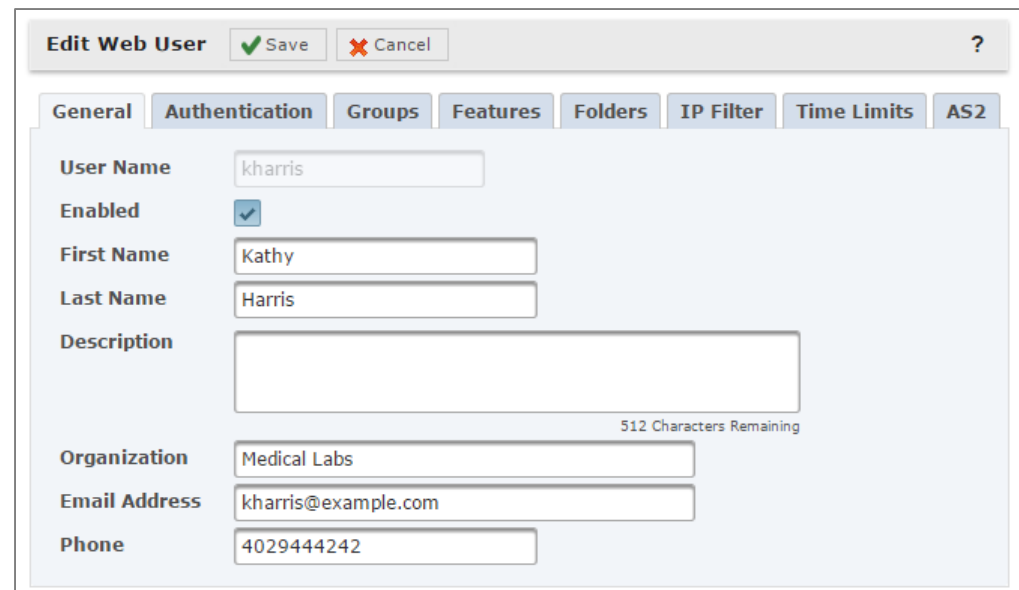


The screenshot displays the GO ANYWHERE Web Client interface. At the top, it shows the user is logged in as 'kharris' with a last login time of 10/10/17 2:33:48 PM. The navigation menu includes Dashboard, GoDrive, Secure Mail, Secure Folders, Secure Forms, My Account, and Activity Report. The main content area is titled 'Secure Folders' and shows a file list with columns for Name, Date Modified, and Size. Two files are selected: 'GoAnywhere\_Customer\_Care\_Guide.pdf' (545.09 KB) and 'GoAnywhere-on-Automatic.jpg' (167.60 KB). The interface also includes a search bar, an upload button, and a footer indicating 'Powered by GoAnywhere'.

Name	Date Modified	Size
Outgoing	3/16/17 2:50:33 PM	
Incoming	6/8/17 12:43:47 PM	
New Folder	7/17/17 2:08:14 PM	
Azure Blob Storage	9/21/17 8:01:27 AM	
<input checked="" type="checkbox"/> GoAnywhere_Customer_Care_Guide.pdf	3/16/17 2:50:51 PM	545.09 KB
<input checked="" type="checkbox"/> GoAnywhere-on-Automatic.jpg	3/16/17 2:50:51 PM	167.60 KB
files.zip	3/16/17 2:50:52 PM	9.28 MB
2017_07_17_13_06_59.png	7/17/17 1:10:29 PM	25.43 MB

# Trading Partner Management

- ▶ Create Trading Partner accounts using Wizards, APIs, batch load or self-registration
- ▶ Authenticate users against AD, LDAP, IBM i or database. SAML for Single Signon
- ▶ Grant individual permissions or adopt permissions from groups
- ▶ Restrict to FTP, SFTP, FTPS, HTTP/s, AS2
- ▶ Restrict access to certain folders and permissions (e.g. upload, download, delete, rename, etc.)
- ▶ Restrict to certain IPs
- ▶ Set Time Limits



**Edit Web User**   ?

**General** Authentication Groups Features Folders IP Filter Time Limits AS2

**User Name** kharris

**Enabled**

**First Name** Kathy

**Last Name** Harris

**Description**  512 Characters Remaining

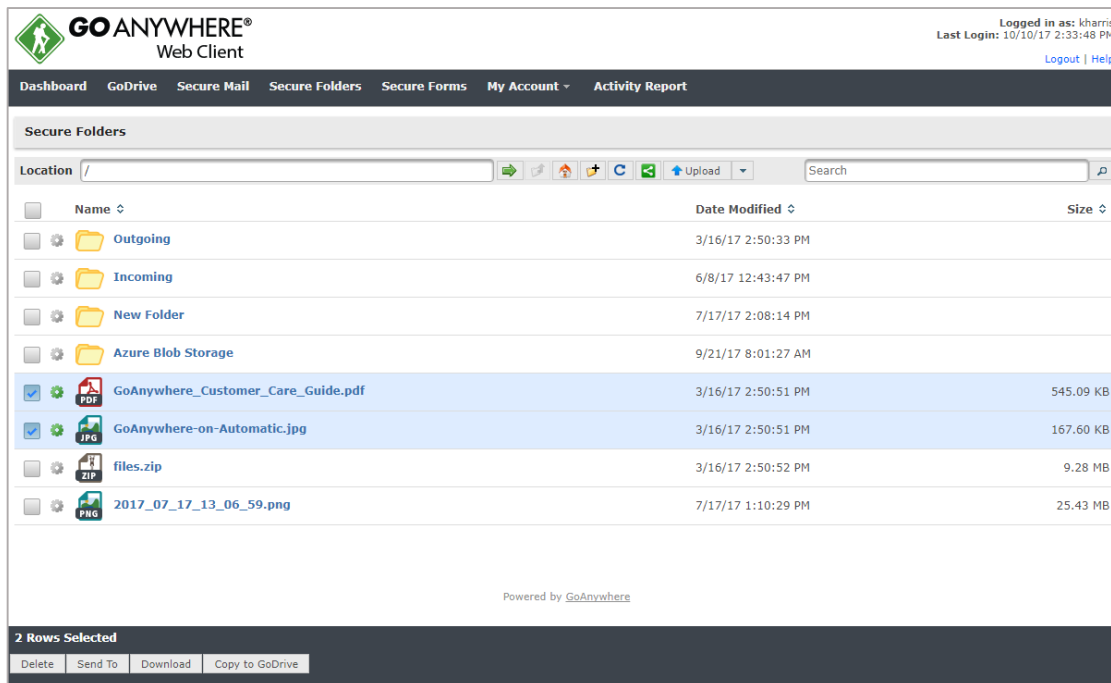
**Organization** Medical Labs

**Email Address** kharris@example.com

**Phone** 4029444242

# Web Client for Ad-Hoc File Transfers

- ▶ Provides your trading partners with browser-based access to your system for uploading and downloading files
- ▶ Rebrand with your company logo and privacy policy
- ▶ Full audit trails and event triggers

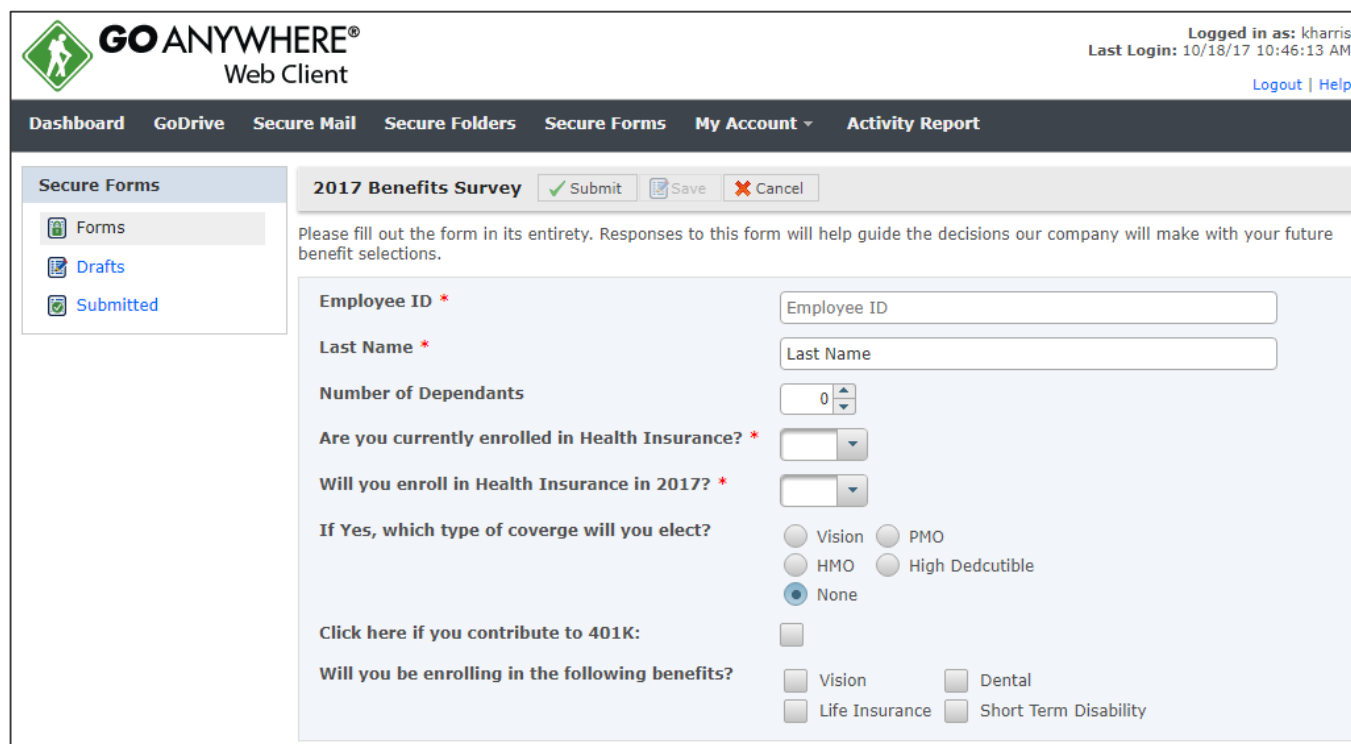


The screenshot displays the GO ANYWHERE Web Client interface. At the top, the logo and "Web Client" text are on the left, and the user is logged in as "kharris" with a last login time of "10/10/17 2:33:48 PM". A navigation bar includes "Dashboard", "GoDrive", "Secure Mail", "Secure Folders", "Secure Forms", "My Account", and "Activity Report". The main content area is titled "Secure Folders" and shows a file list with columns for Name, Date Modified, and Size. Two files are selected: "GoAnywhere\_Customer\_Care\_Guide.pdf" and "GoAnywhere-on-Automatic.jpg". At the bottom, a status bar indicates "2 Rows Selected" and provides actions like "Delete", "Send To", "Download", and "Copy to GoDrive".

Name	Date Modified	Size
Outgoing	3/16/17 2:50:33 PM	
Incoming	6/8/17 12:43:47 PM	
New Folder	7/17/17 2:08:14 PM	
Azure Blob Storage	9/21/17 8:01:27 AM	
<input checked="" type="checkbox"/> GoAnywhere_Customer_Care_Guide.pdf	3/16/17 2:50:51 PM	545.09 KB
<input checked="" type="checkbox"/> GoAnywhere-on-Automatic.jpg	3/16/17 2:50:51 PM	167.60 KB
files.zip	3/16/17 2:50:52 PM	9.28 MB
2017_07_17_13_06_59.png	7/17/17 1:10:29 PM	25.43 MB

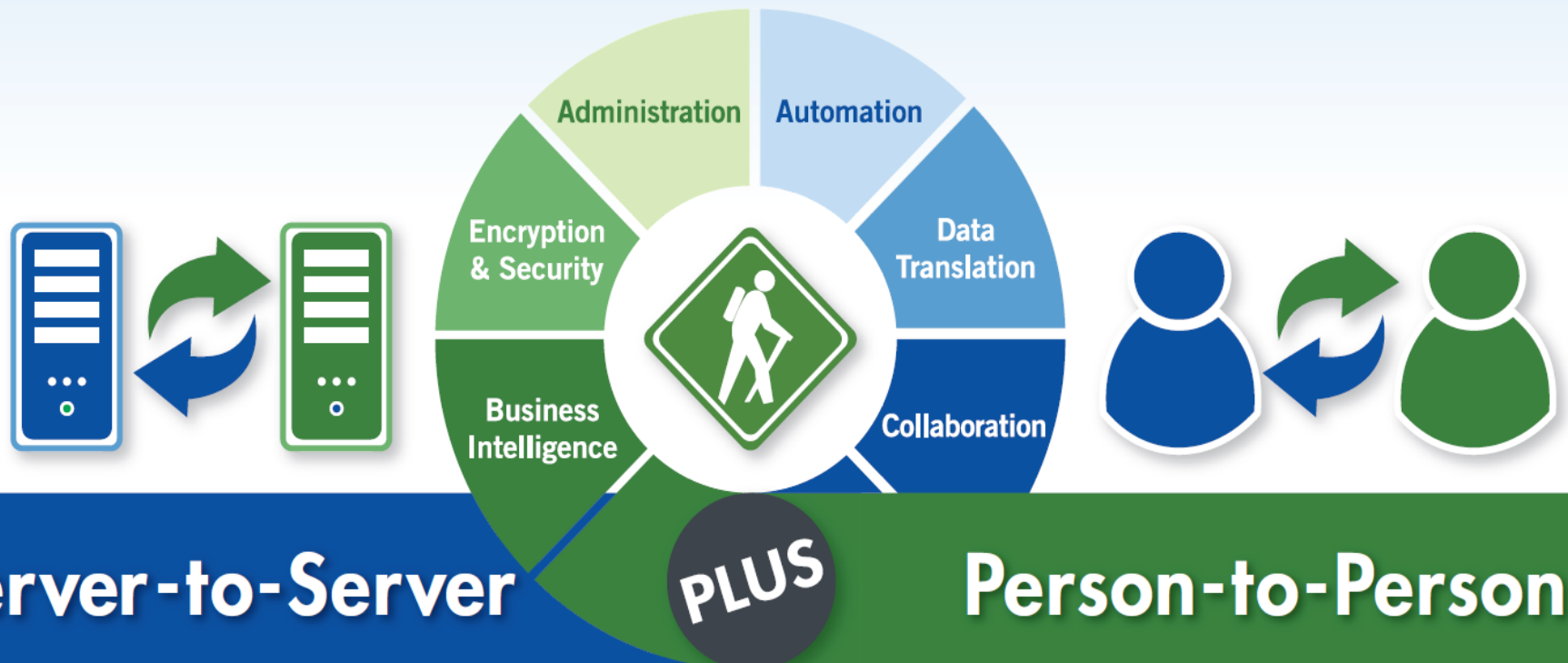
# Secure Forms

- ▶ Design custom forms with fields to collect information
- ▶ Supports text boxes, radio buttons, check boxes, drop down lists, etc.
- ▶ Optionally submit one or more files along with the form
- ▶ Form data and files are processed through Project workflows



The screenshot displays the 'GO ANYWHERE Web Client' interface. At the top right, it shows the user is logged in as 'kharris' with a last login of '10/18/17 10:46:13 AM'. A navigation bar includes 'Dashboard', 'GoDrive', 'Secure Mail', 'Secure Folders', 'Secure Forms', 'My Account', and 'Activity Report'. The 'Secure Forms' section is active, showing a sidebar with 'Forms', 'Drafts', and 'Submitted'. The main form is titled '2017 Benefits Survey' and includes 'Submit', 'Save', and 'Cancel' buttons. The form instructions state: 'Please fill out the form in its entirety. Responses to this form will help guide the decisions our company will make with your future benefit selections.' The form fields include: 'Employee ID \*' (text box), 'Last Name \*' (text box), 'Number of Dependents' (dropdown menu with '0' selected), 'Are you currently enrolled in Health Insurance? \*' (dropdown menu), 'Will you enroll in Health Insurance in 2017? \*' (dropdown menu), 'If Yes, which type of coverage will you elect?' (radio buttons for Vision, PMO, HMO, High Deductible, and None, with 'None' selected), 'Click here if you contribute to 401K:' (checkbox), and 'Will you be enrolling in the following benefits?' (checkboxes for Vision, Dental, Life Insurance, and Short Term Disability).

# GoAnywhere Managed File Transfer



# Installation Requirements

## Linux (32-bit and 64-bit):

- Distributions Red Hat, SUSE, Ubuntu, CentOS (not inclusive)
- Disk space 375 MB per product (not including user data)
- Memory 512 MB minimum per product

## Windows (32-bit and 64-bit):

- Operating System Windows 2016, 2012 R2, 2008 R2, 2003, 2000, XP, Vista, 7, 10
- Disk space 375 MB per product (not including user data)
- Memory 512 MB minimum per product

## IBM i (iSeries)

- Operating System V7R1 or higher
- Disk space requirements 275 MB per product (not including user data)
- Memory requirements 512 MB minimum per product
- JRE 1.7 or later

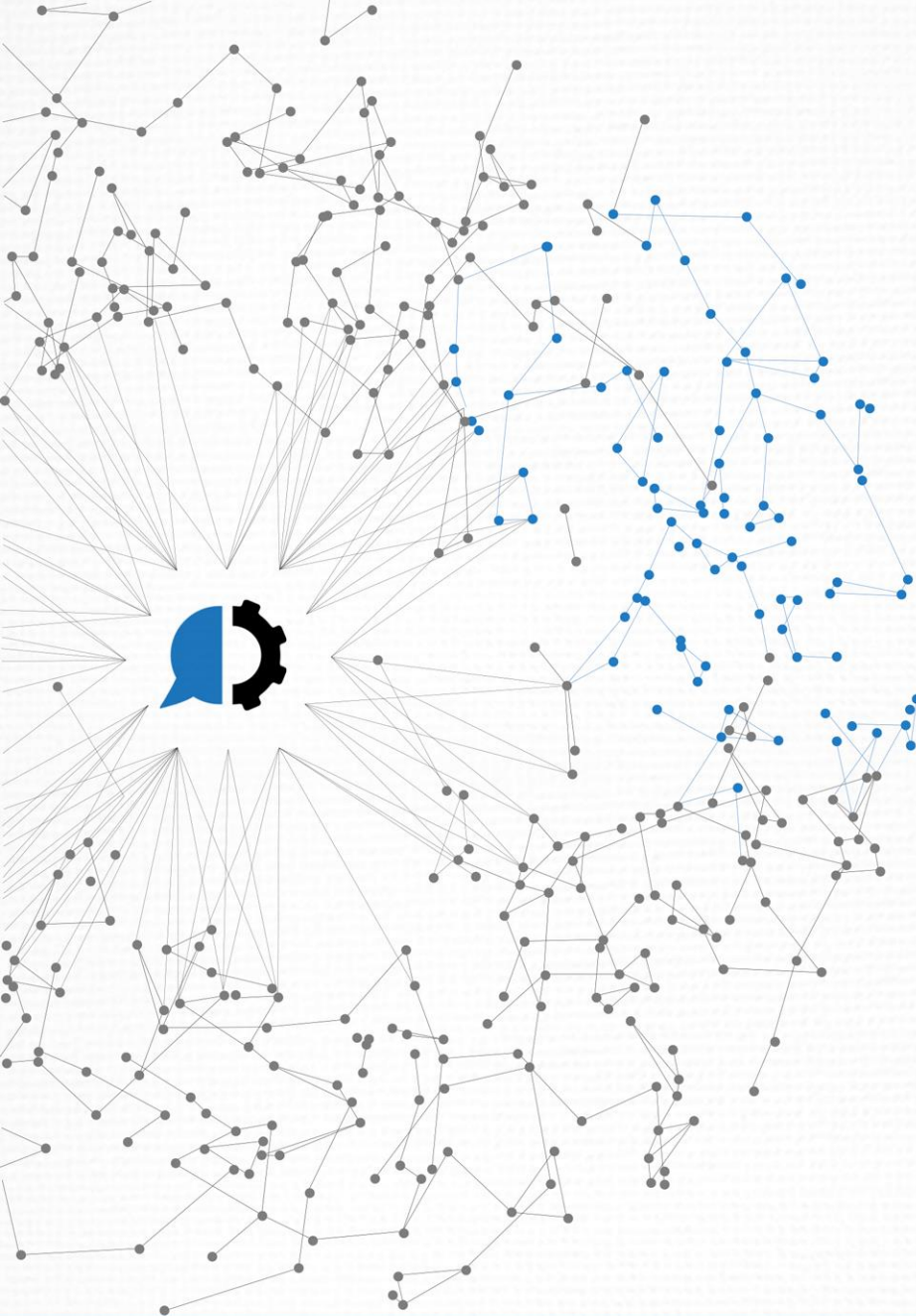
## UNIX / AIX / Solaris / HP-UX:

- Disk space requirements 250 MB per product (not including user data)
- Memory requirements 512 MB minimum per product
- JRE 1.7 or later

## Virtualized Environments:







**GO ANYWHERE<sup>®</sup>**  
Managed File Transfer

[www.GoAnywhere.com](http://www.GoAnywhere.com) 

[goanywhere.sales@helpsystems.com](mailto:goanywhere.sales@helpsystems.com) 

Toll-Free 1-800-949-4696 

Direct (402) 944-4242 