Hosted but still connected

integrating hosted Sierra with other systems

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Yale Law Library

Overview

- Software only vs. Turnkey vs. Hosted
- What systems can we connect to?
- Methods and tools
- Barriers
- Strategy and solutions

- Interactive portion: your questions, examples, roadblocks

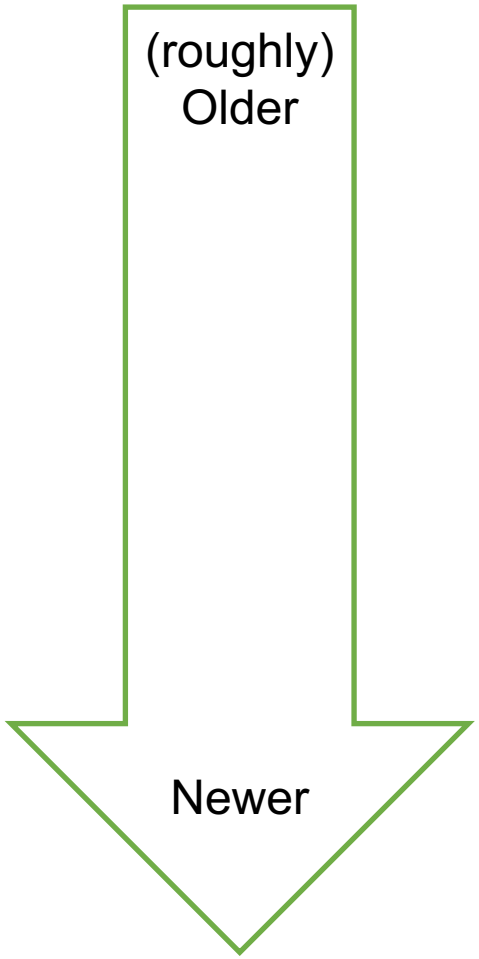
Why integrate?

No system is an island

- Patron data from student system(s)
- Patron fines to bursar
- Patron collections to collection agency
- Orders, holdings to vendors
- Invoices from vendors
- Shelf-ready bib, item, invoice information
- Vouchers to accounts payable department
- Data to reporting/business intelligence
- Holds to AMH or remote storage system
- Bib info from or to bib utility
- Patron requests to Illiad, Aeon, etc.
- Bib info to discovery service
- Availability, item info for discovery service
- Records to or from authority vendor
- Records or holdings from knowledgebase
- Patron info to engagement service/CRM
- Collection data to analysis service
- Self-check machines (+ RFID pads, gates)

Tools in Sierra

- FTS (part of Sierra that gets/sends FTP or SFTP files)
- Data Exchange (controlled by tables)
  - Load tables “m2btab” are editable
  - Output tables “b2mtab” can only be changed by Innovative
- Z39.50, OpenURL (Webbridge), SIP2, OAI-PMH
- Export lists (in Create Lists)
- Scheduler
- SQL access
- Sierra REST APIs
- Mobile Worklists, Circa, Inventory



How to start [1]

- **You need to know if the machines are on your network or not**

- Is your system software only?
  - You have control over the server that Sierra runs one
  - You know if this is **on your network**, or hosted by a cloud provider
- Is your system (still) Turnkey? [deprecated]
  - It's **on your network**, but controlled by Innovative
- Is you system hosted by Innovative?
  - Whether in AWS, Rackspace, or Proquest datacenters – **not on your network**

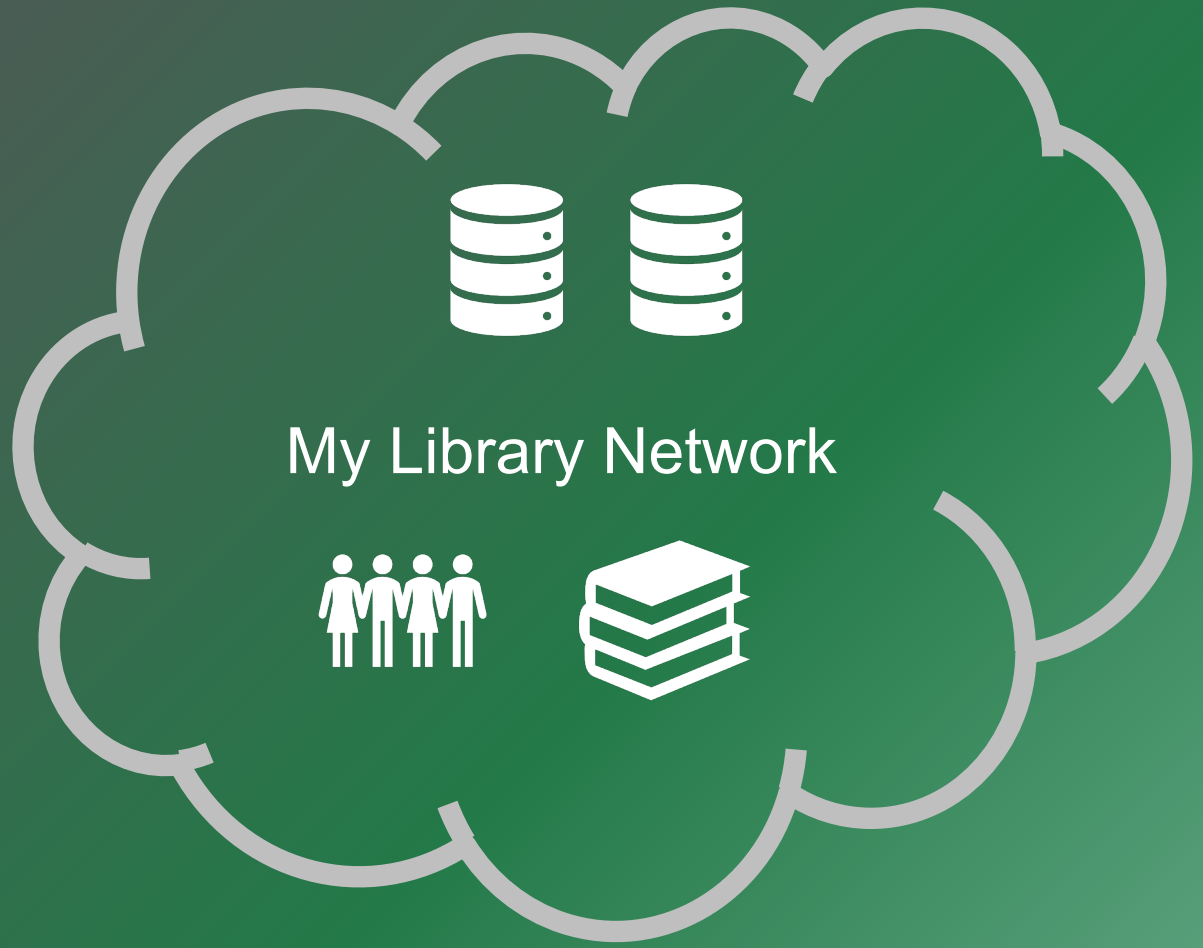
How to start [2]

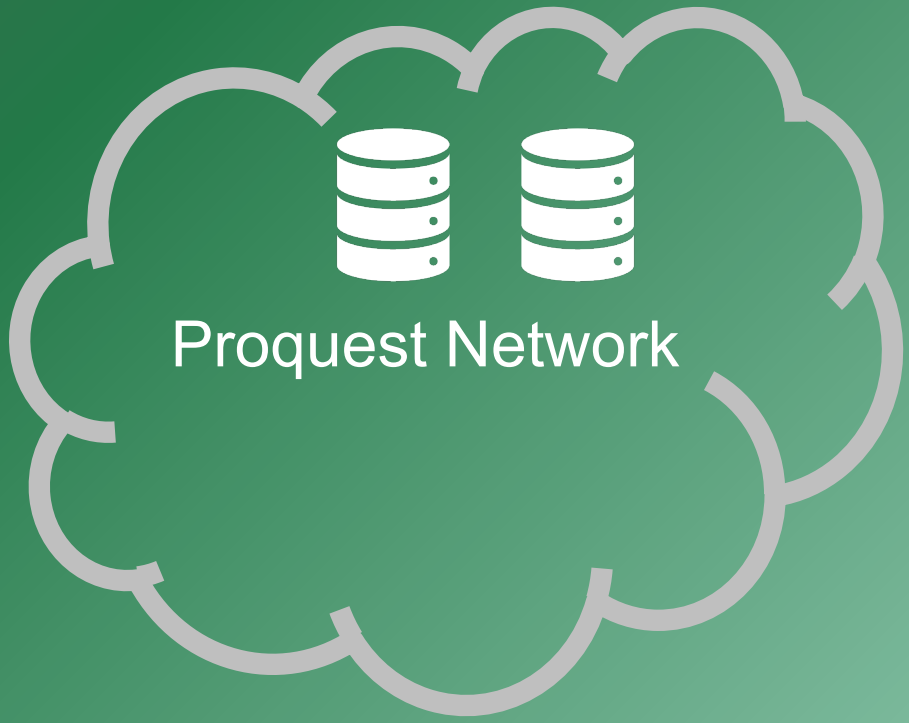
- Write down the IP addresses and server names of your
  - Application server
  - Database server
  - Test/training server (if you have one)
  - SSO server (if you have one)
- Use server names (“FQDN”) whenever possible, you will need IPs for firewall rules
- Understand enough of the system to know which server is relevant
  - Most things happen through the application server
  - If you are using SQL queries, that’s the database server

Some names of things that have to all work together

- **LNA** or Limit Network Access table in Sierra Admin Corner (text)
  - This is a software firewall on the Sierra server you can edit
  - Generally not called a firewall, called LNA
- **Hosting or Cloud firewall**
  - This is a border firewall on the cloud hosting environment
  - Only helpdesk can alter this
  - Be careful with this, it affects everything in your hosting environment
- **Local or Your firewall**
  - This is the border firewall on your local network

New Barrier
Before → After





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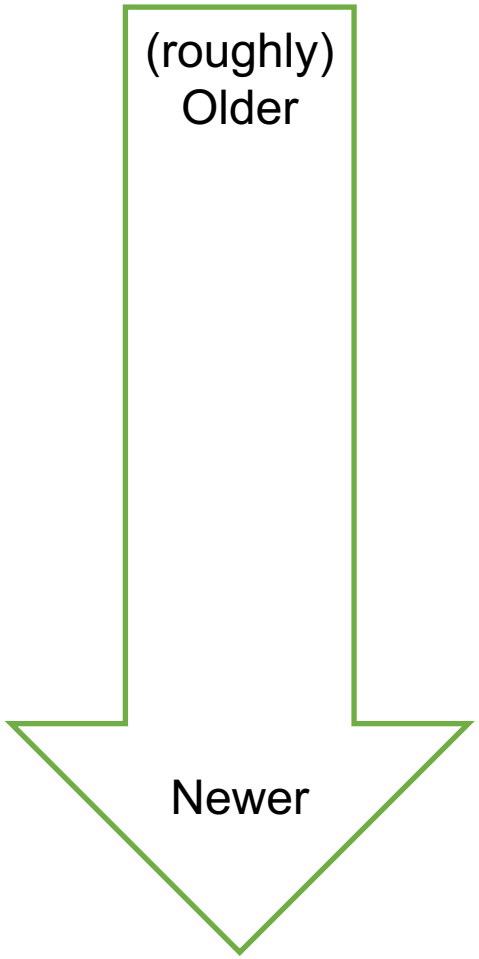

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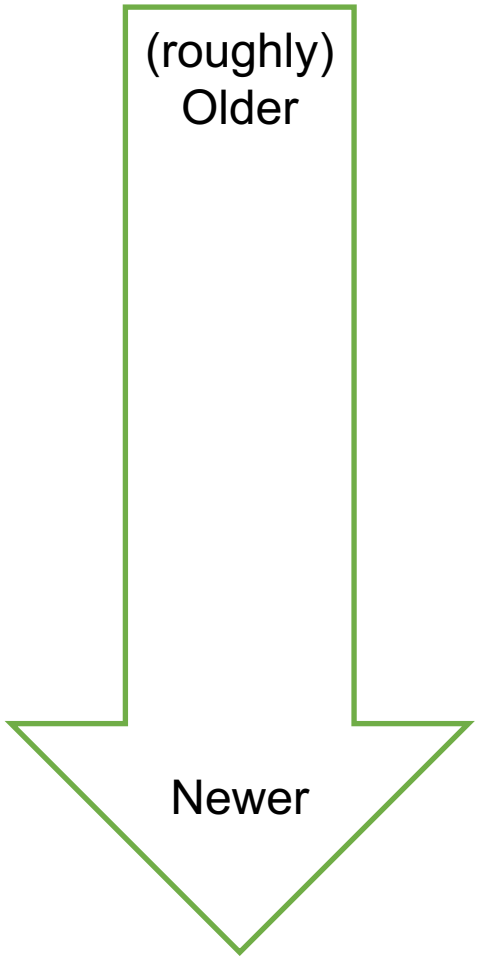
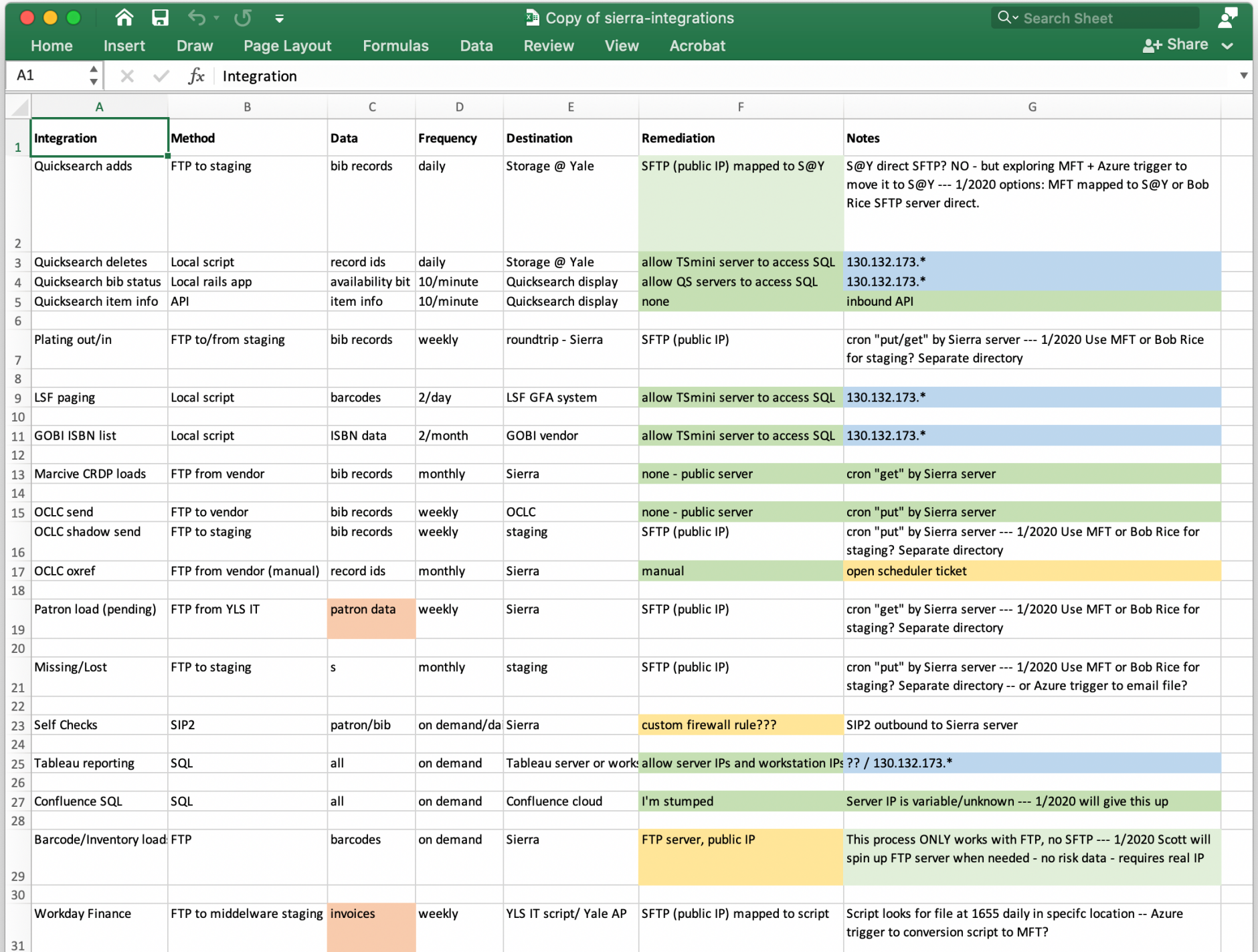


Strategy: analyze your existing (or desired) integrations

- What process / thing are you integrating?
- What kind of data is it / level of risk?
- Where is it starting, where is it going?
- Protocol (how?)
- Is it a push or a pull – this can matter for firewall settings
- Frequency (how important is it to get working)?

- This is also great for demonstrating what systems people do all day



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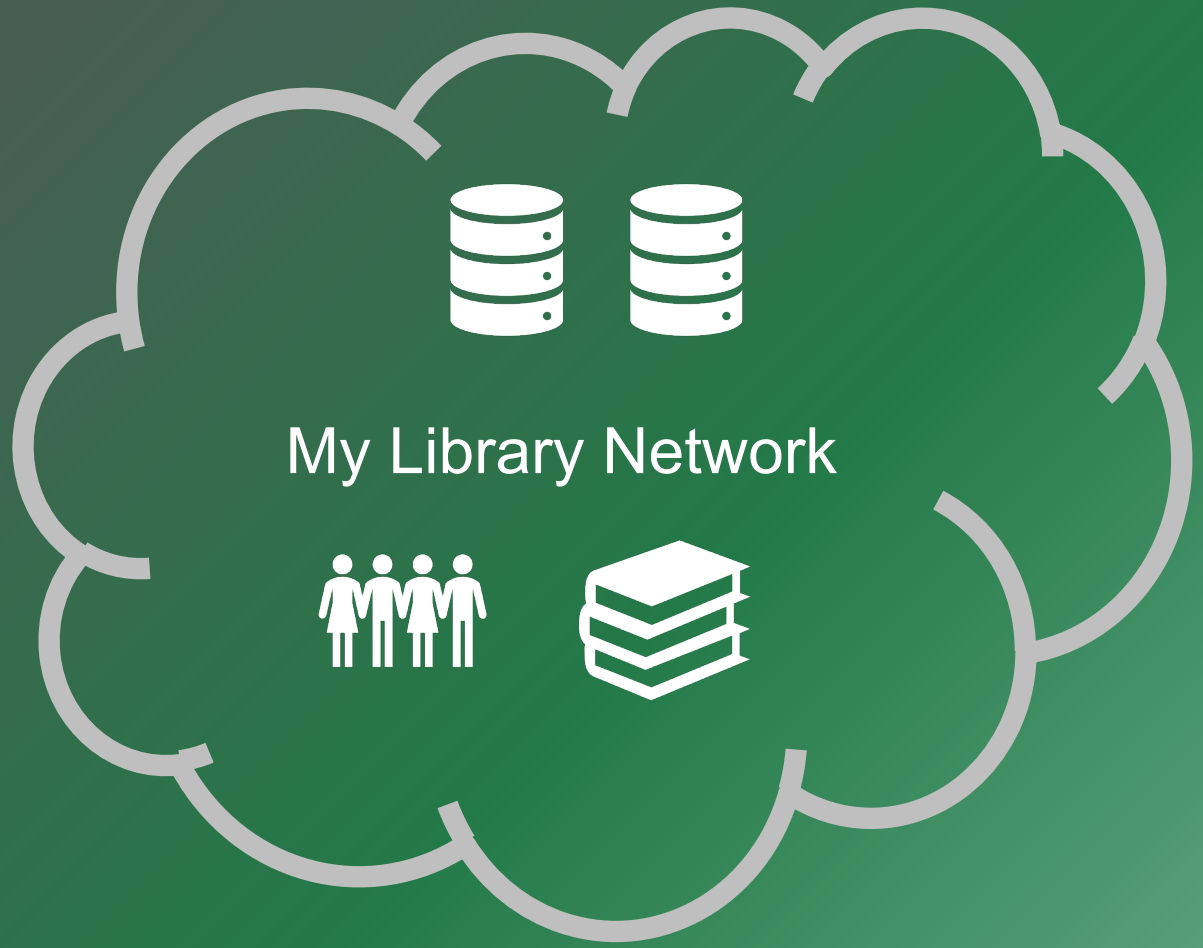

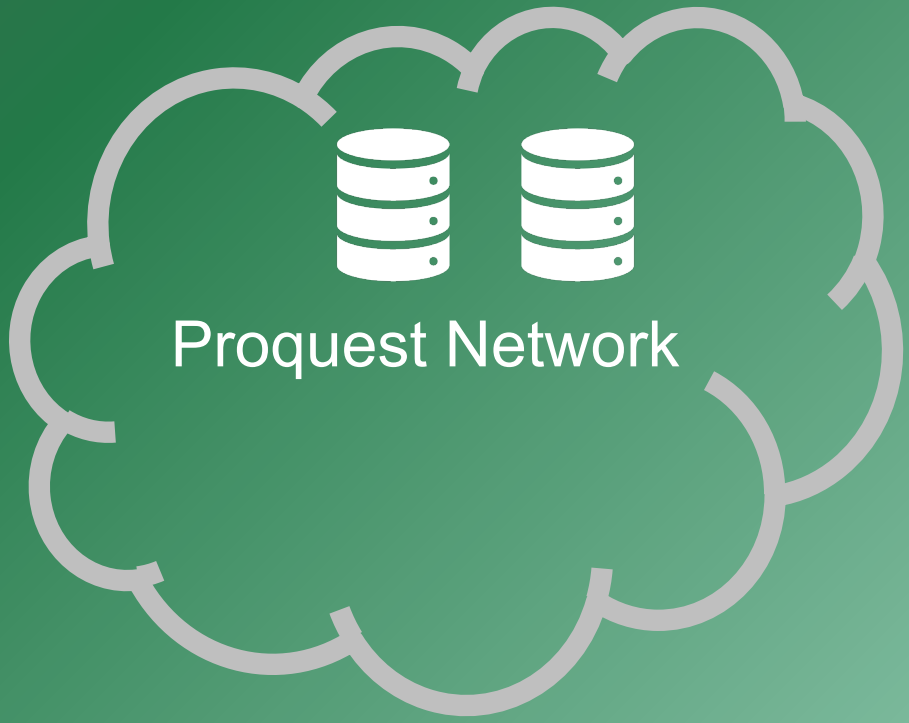

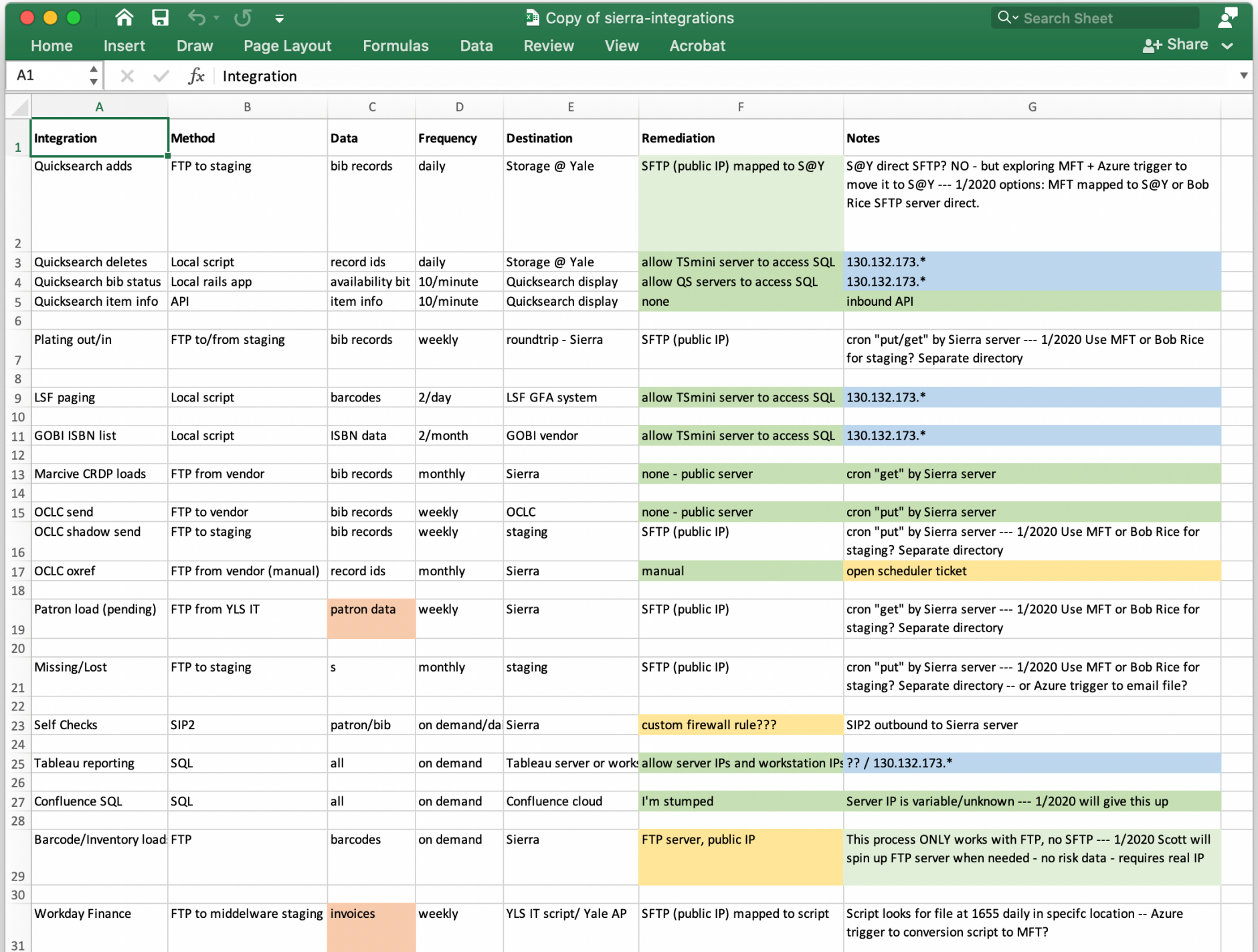

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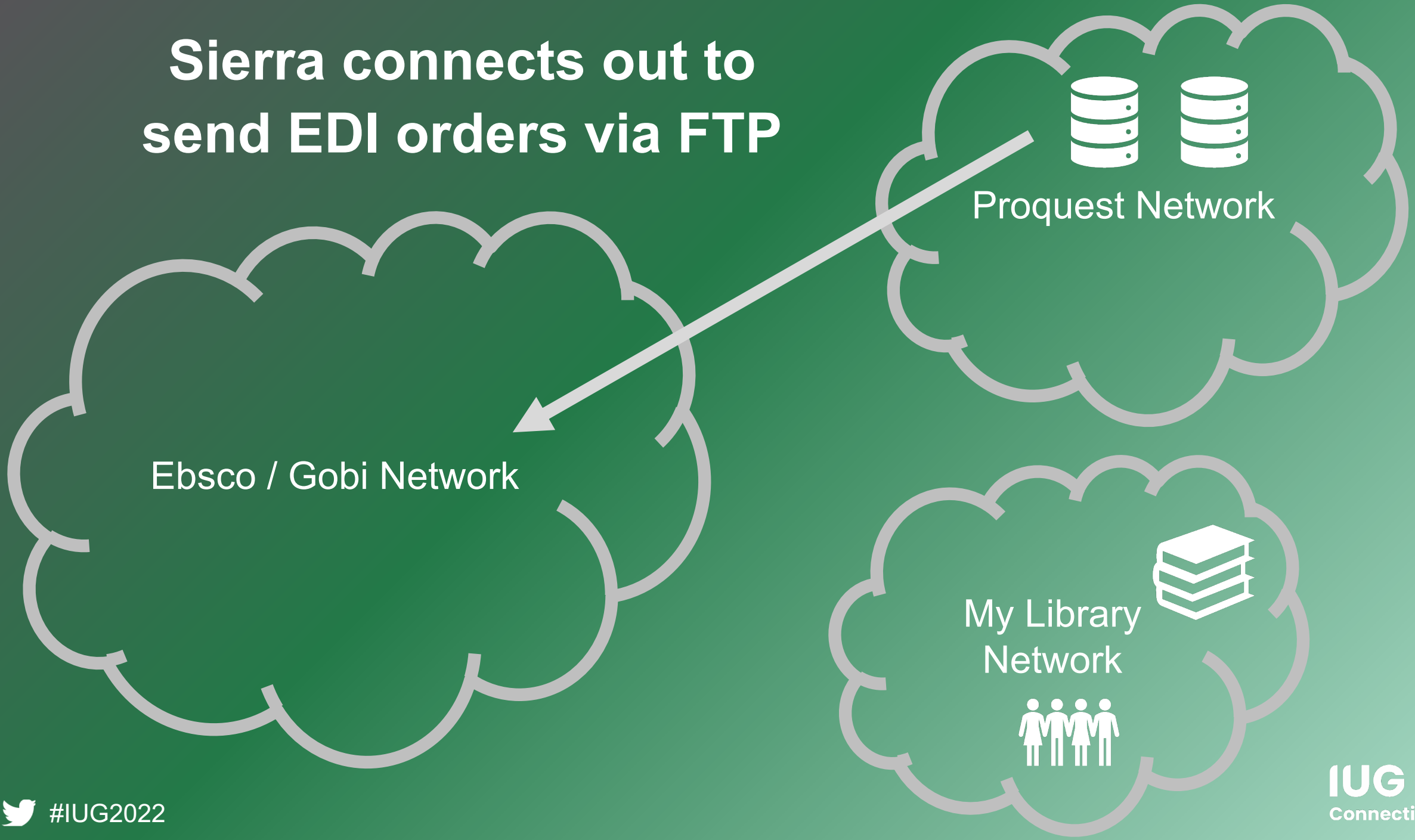
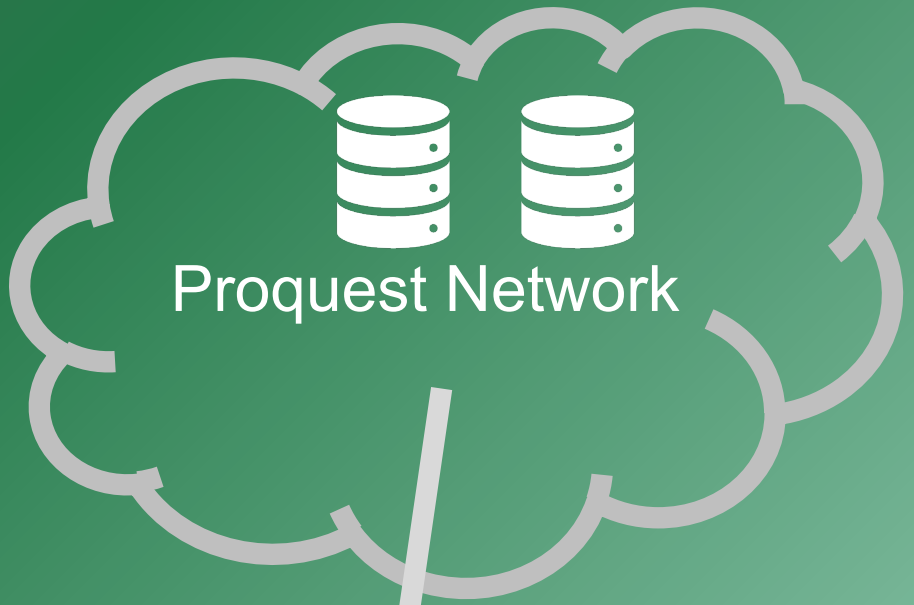
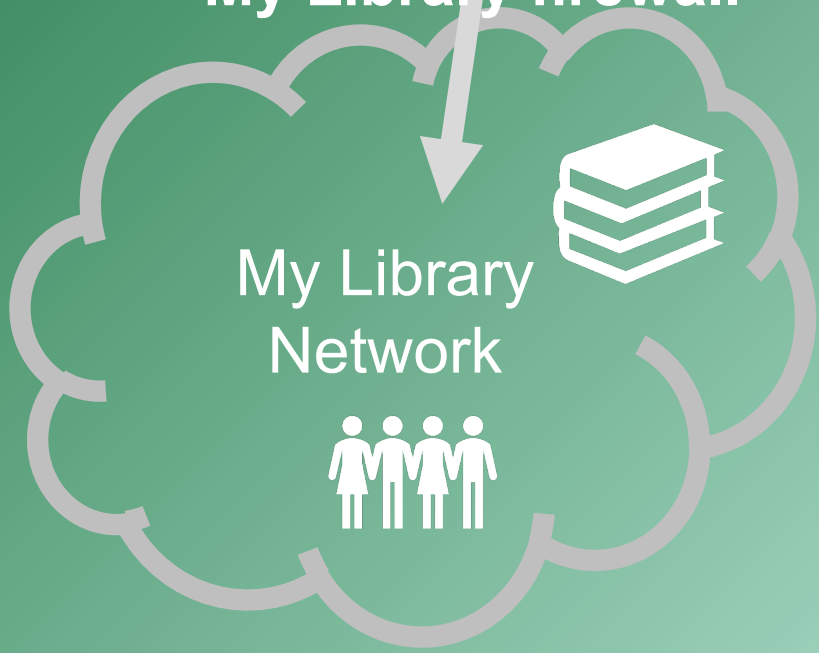
Sierra connects out to send EDI orders via FTP



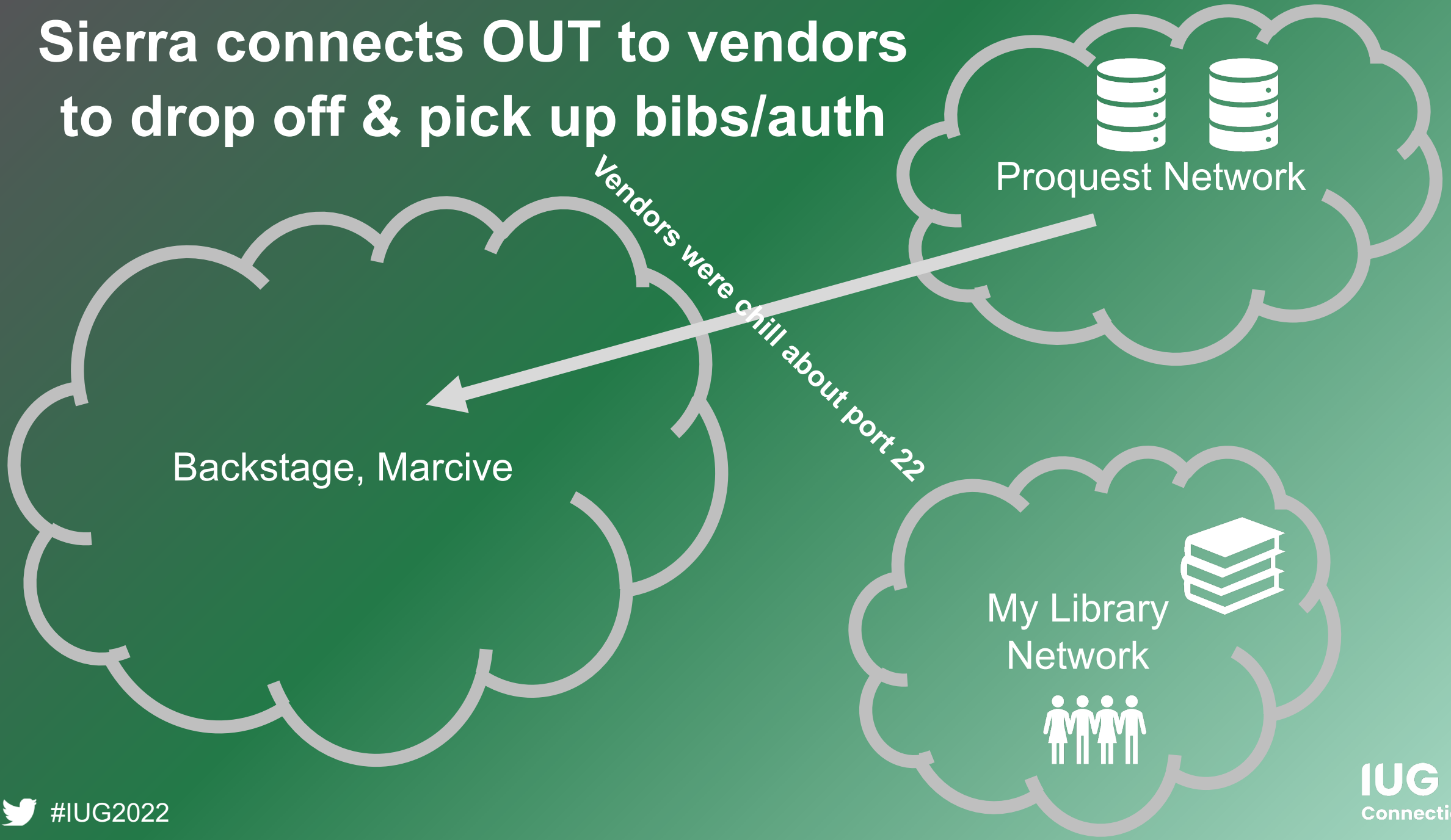
Sierra connects IN to My Library to drop off bibs



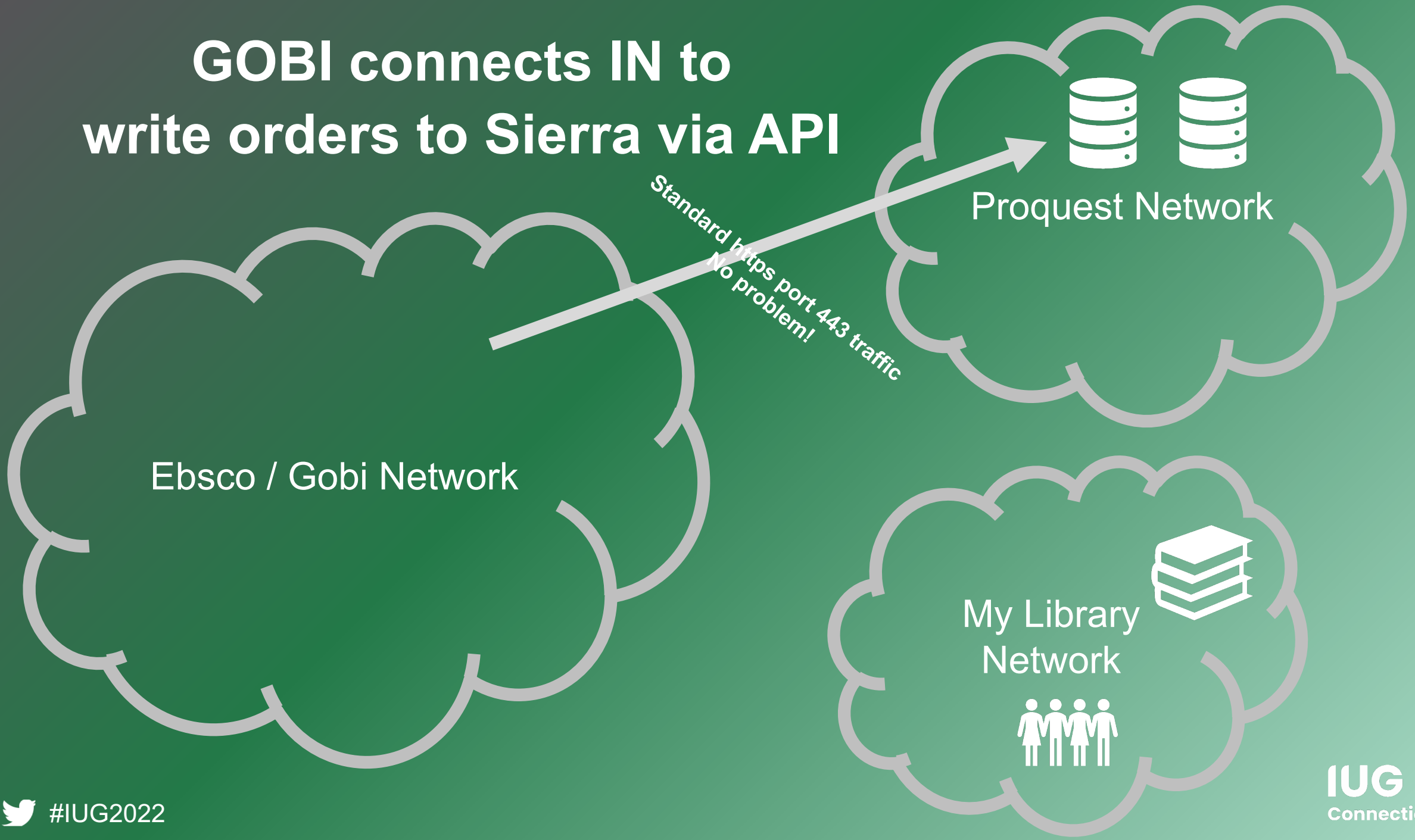
Port 22 had to be opened on My Library firewall

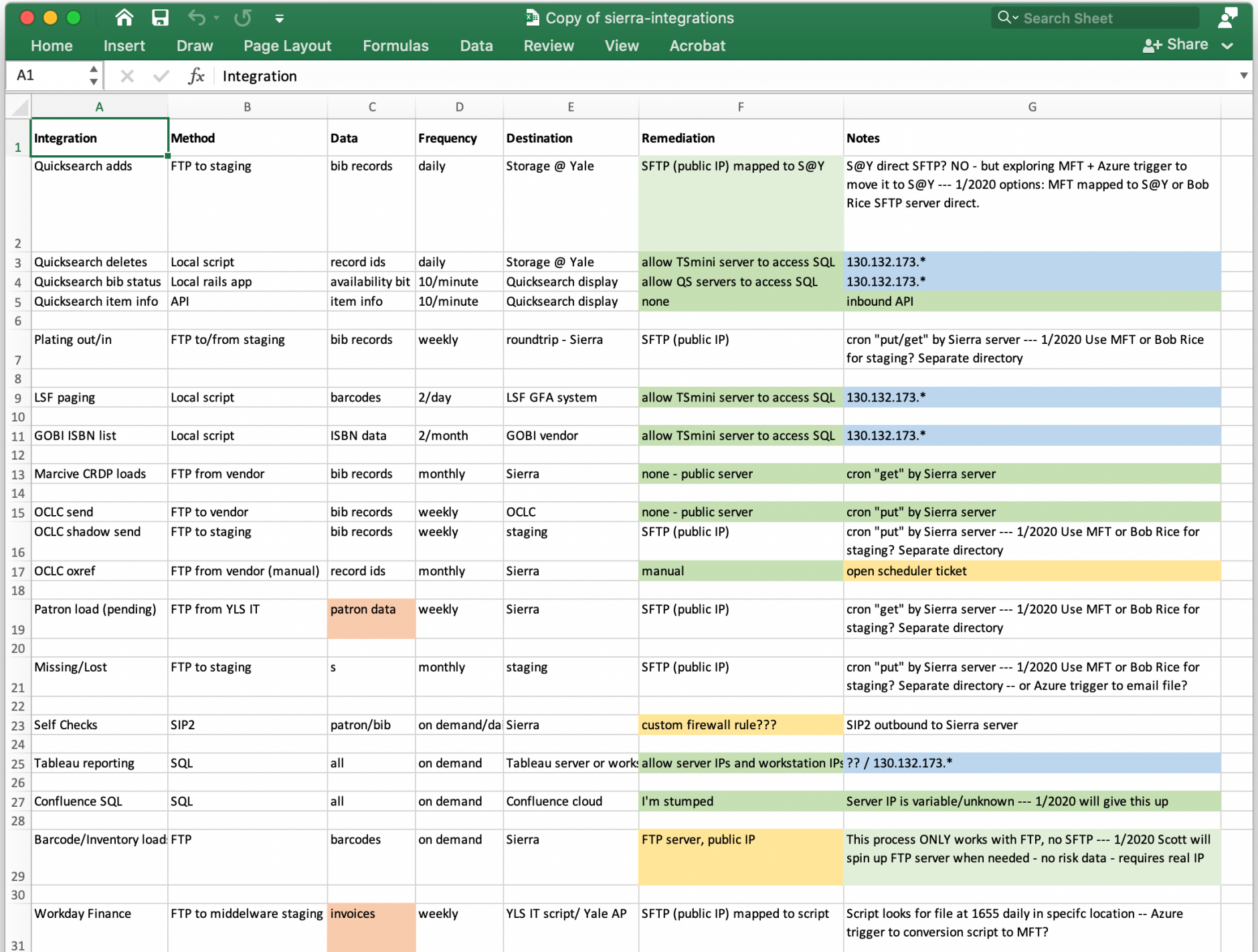


Sierra connects OUT to vendors to drop off & pick up bibs/auth



GOBI connects IN to write orders to Sierra via API





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API calls for real-time availability in discovery layer

Before

- We called API for item info
- Uses regular HTTPS call
- Port 443

After

- No change needed
- Port 443 open outbound from library
- Port 443 open inbound to Sierra

No firewall rule at hosting site

SQL queries for remote storage holds, payfile reporting, etc.

Before

- Local server ran SQL query
- Local consumers got results
- Port 1032

After

- Local server runs query
- Local consumers get results
- ⚠ Host firewall port 1032 *must* be open from local server IP

If your local server has a private IP…

Scheduler jobs for sending changed bibs

Before

- Local Sierra put via FTP to destination
- FTP never went outside local network

After

- Cloud Sierra put via **S**FTP to new server on campus
- Had to set up SFTP server

⚠ Local firewall port 22 *must* be open from cloud server IP

Sending output vouchers file to local AP system

Before

- Local Sierra put via FTP to destination on campus
- FTP never went outside local network

After

- Cloud Sierra put via **S**FTP to new SFTP server on campus
- Sending from Sierra server, though SDA is operated on a different IP

⚠ Local firewall port 22 *must* be open from cloud server IP

Scheduler jobs for loading vendor bibs

Before

- Local Sierra get via SFTP from vendor

After

- Cloud Sierra get via SFTP from vendor

There is no step 2, this just works.

SQL query from cloud hosted Confluence site

Before

- Cloud hosted wiki plugin would query local Sierra DB.

After

- Can not allow specific IP because cloud hosted wiki changes IP arbitrarily.

This was the failure, which was really just correcting very poor prior security.

SIP2 connection for selfchecks

Before

- Allow SIP from local IP in LNA
- SIP traffic never went outside local network

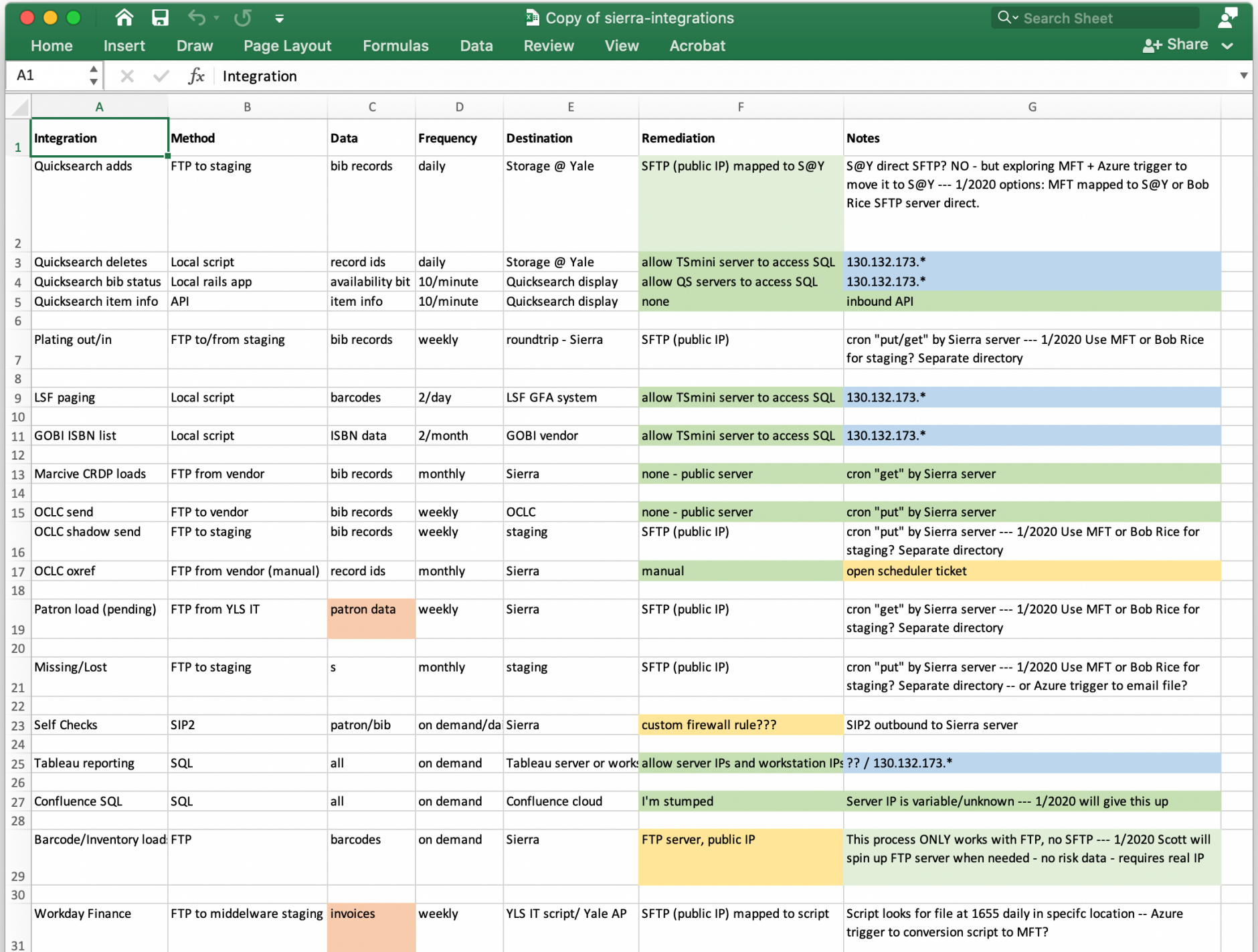
NB: traffic was still snoopable by local baddies

After

- Configure stunnel on cloud Sierra
- Configure stunnel on selfcheck PC
- Configure port mapping both ends

⚠ Open ports on local and cloud firewall, depending on chosen ports

NB: traffic encrypted between selfcheck and Sierra



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TL;DR

- Sierra REST APIs 😀
- Scheduler (once SFTP is set) 😊
- Library-specific 🤔
- Supported = good

Closing thoughts

- Using connections that operate over standard web (http/s) ports like 80 and 443 with built-in security, like REST APIs will be:
  - Harder to set up initially
  - More robust over time, server moves, end of IPv4, etc.
- Using SFTP may require port 22 openings in firewalls as it is a popular attack vector and often blocked
- Consider encryption when moving legacy plaintext protocols off your network (e.g. use stunnel with SIP2)

Closing thoughts

- If something was working, but breaks after move to hosting, work through each step of the connection/data path
  - Don’t forget the “AWS” or Cloud firewall that you can’t see or control
- If you can’t get something to work that others can, ask for details and confirm with your local IT / network engineering
- Beware the “private” or “IANA Reserved” IP (10.x.x.x, 192.168.x.x, 172.16-31.x.x)
- These are similar tools and strategies to those for e-resource access troubleshooting

For Q&A / interactive session, come with…

Your problems / opportunities

- Something you're re-keying
- A system you can't talk to
- Something used to work before you moved to hosted…

Your successes / solutions

- Even manually sending a file saved time…
- New connection that speeds data exchange or reduces errors
- Reporting integration that makes data useful?

THANK YOU

Q&A session at 9:45 Bring your questions, examples, and puzzles!