Presentation write-up:

**1.)** **Title**

**2.)** **Biographies**

**3.)** **\*What is Product Support? \***

Production support is the practices and disciplines of supporting the [IT](https://en.wikipedia.org/wiki/Information_technology) systems/applications which are currently being used by the [end users](https://en.wikipedia.org/wiki/User_(computing)#End_user). A production support person/team is responsible for receiving incidents and requests from [end-users](https://en.wikipedia.org/wiki/End-user), analyzing these and either responding to the end user with a solution or escalating it to the other IT teams.

\*Note levels of support and various responsibilities\*

\*Business continuity\*

Recording Production Error

The on call person acknowledges the e-mail, page, text or phone call for the abended job. The on call person also records the abended job details in a production issue tracking system. Sometimes, the abended job automatically records the job abend details along with job standard list (job log) in a production issue tracking system. The abended job details (job standard list, error log files, etc.) are available in the production job scheduler tool. The Production issue tracking tool creates a request number and this request number is given to the support team. This request number is used to track the progress of the production support issue. The request is assigned to on call support team person.

### Notification of Production Error

For critical Production Errors (e.g. Production job is in critical path and is likely to delay the batch completion [SLAs](https://en.wikipedia.org/wiki/Service-level_agreement) and if the Production error is impacting business data), an e-mail is sent to entire organization or impacted teams so that they are aware of the issue. They are also provided with the estimated time for Production error recovery.

### Investigation or Analysis of Production Error

The Production support team on call person collects all the necessary information about the Production error. This information is then recorded in the Production error tracking tool using the correct support request number previously assigned. All the details such as data, environment, process, program logic that failed is used in the investigation. Production batch job, program used or any tool/utility used is reviewed for any possible errors.

### Resolution of Production Error

If similar Production error occurred in the past, then the issue resolution steps are retrieved from the support knowledge base and error is resolved using those steps. If it is a new Production error, then new Production error resolution steps are created and Production error is resolved. The new Production error resolution steps are recorded in the knowledge base for the future usage. For major Production errors (critical infrastructure or application failures), a phone conference call is initiated and all required support persons/teams join the call and they all work together to resolve the error. This is also called as an Incident Management. If a problem occurs repeatedly then it is recorded and tracked using appropriate tools and processes until it is resolved permanently. This is also called as Problem Management. The issue is closed only after the customer or end user agrees that the problem is resolved.

### Production job/program code correction

If the Production error occurred due to programming errors, then a request is created for the Development team to correct programming errors. Problem is identified, defined and root cause analysis is performed. The programming error is fixed using normal SDLC process - analysis/design/programming/QA/testing/release. The new version of the Production job/program is deployed and verified/validated.

## Production Support - Follow up and Reporting

The Production error tracking system is used to review all issues periodically (daily, weekly and monthly) and reports are generated to monitor resolved issues, repeating issues, pending issues. Reports are also generated for the IT/IS management for improvement and management of Production jobs. \*\*ServiceNow\*\*

**4.)** **\*Custodian services | Product Support: \***

Direct Custody and clearing: Citi securities and fund services SFS has direct access to local markets, trade & clearing settlements, Safekeeping measures and asset servicing. The direct custody product support team performs support, maintenance and monitoring for a semi large portfolio of internal applications such as: Securities Front End LATAM, the Client Services Desktop suite, Sebill and more. For an idea of our impact in the form of monetary figures and trade volume, we handle around 15 million trades per month with a trading value of more than 20 billion dollars daily.

**5.)** **Flow diagram:**

High level explanation of application downstream. Basically the client will connect to CitiSwift network which allows access to the securities front end and from there the direction is circumstantial. Here is where the different sectors of product support branch off. Our team specifically does not directly support Secore, Global Interdict or T.M. but we do support SFE, CSD and Sebill.

-What is SFE:

-What is C.S.D.?

-What is Sebill?

**6.)** **Minimum operations levels:**

For production support, operation efficiencies and expectations are rated on change, monitoring, resiliency, Incident management and continuous improvement.

\*Touch on the importance of automation and how that tends to be the pinnacle at top operating levels\*

**7.)** **What our summer looked like:**

The majority of our time was spent observing and learning the daily tasks that production support employs. It is important to have a firm understanding of scripting, databases, monitoring tools and handling incidents and changes. This included shadowing sessions, hands on experience with incident / change management, and monitoring of application and hardware. Paired with Citi trainings and Udemy courses we spent a decent portion of time refining our skill sets and proficiency with tools like PowerShell and SQL Server. New tools like ITRS Geneos were introduced along with a bit of AutoSys.

\*What level of support are we? \*

\*What are our limits? \*

**8.)** **SFE and Script Automation:**

The production support team executes the automation of various systems through technologies like AutoSys. This allows for enhanced monitoring and decreases performance downtime. When batch jobs fail or experience an issue, it can be attributed to script/ job error. This is where the importance of scripting and automation come in. By automating these jobs and scripts we are reducing manual touch points and increasing the frequency and reliability of support services by usage of alerts and triggers making the support environment *proactive, not reactive.*

**9.) The role of Autosys**

**AutoSys** is an automated job control system for scheduling, monitoring, and reporting. Production support uses this to automate scripts and reduce turn-around time of support tickets. An example is a failed batch job-in one scenario and product support member may force start the job in Autosys and this may fix the original issue. This reduces labor and decreases the amount of time it takes to solve incidents.

-Command Jobs: Can be a shell script or an executable program.  
-Box Jobs: is a container of other jobs. And is used to organize and control process flow. If no other starting conditions are specified at the job level, a job within a box will run as soon as the starting conditions for the box are satisfied. If several jobs in a box do not have job-level starting conditions, they will all run in parallel.  
-File watcher: starts a process that monitors for the existence and size of a specific operating system file. When that file reaches a certain minimum size, and is no longer growing in size, the File Watcher Job completes successfully, indicating that the file has arrived.

**10.)** **ServiceNow – Ticketing made easy**

Because of the nature of product support, the ServiceNow utility makes the biggest impact and is used the most by our staff. Basically any time that an internal client has a business or technical issue an incident, change or request is made. A great example is a server that went down – at this point the client/ end user would create a ticket in service now and the issue would be forwarded to the support team or individual (if specified). The ticket is acknowledged and based on your team setup that member will assign the task to themselves or it will be done for them. If the solution cannot be found by our support level it is further escalated.

ServiceNow is extremely important and useful as it not only semi automates the incident process, it also keeps records of incidents and problems and allows for reporting services to track problems and prevent them in the future if they seem to be reoccurring or if they have the potential to occur again. ServiceNow brings efficiency and continuity of business at every level.

**11.) ServiceNow and PS Breakdown:**

**Incidents**: (random bit about process of acknowledgement, investigation, solution and escalation)

-Standard incident:

-Major incident:

-Problems:

**Changes**:

-Change management:

**Service requests:**

**Support level appropriation** (who can do what and why:

**Problem management:**

**Escalation guidelines:**

**12.)** **Other essential tools and utilities:**

Due to the investigative nature of our role and team its important to recognize the other tools that are used on a daily basis.

-Microsoft SQL Server:

-Powershell/ Batch scripting:

**13-14) ITRS Geneos – Monitoring essential systems and applications**

The ITRS software package is utilized by our team is used to monitor and maintain hardware, batch jobs, database monitoring, networking monitoring and many more components to ensure that downtime or performance issues are minimal and short lived/avoided as a whole. ITRS is based on a three tier structure that combines visualization, consolidation and instrumentation. This way we can create triggers and alerts that monitor for specific behaviors or actions and notify us immediately. Measuring system and application performance is also a key feature and provides key metrics for daily operations and functions. ITRS supports many options for monitoring and also allows for the execution of scripts and over 130 plugins. Here’s a quick graphic that details a few monitoring scenarios. Support teams create netprobes to monitor a specific environment/application and within the netprobe is an instance of itself, called a sampler. Samplers exist within specific setups and allow for the creation of rules and severity settings for alerts. \*Find better graphics for slides\*

**15.) The ITRS Geneos maturity model** details what one would expect from an ideal monitoring environment. \*Elaborate on the breakdown and importance of achieving high level maturity\*

**16.) ITRS Samplers**

-Our sampler(s), what they do, why etc….

-Inclusion of screenshots or something

**17.) Takeways from PS and impressions:**

-Robert’s thoughts:

**-**Shane’s thoughts:

**18.) Automation Enhancement project:**

-Mainly Robert talking; chime in with supportive comments and provide joint understanding of what was achieved/what was trying to be achieved. \*iashaosifhasf script stuff. Robert blah blah

Apsofapsf

Apsofpaosf endBlahBlah\*

We broke down the scripts for a very important daily function and split them up to create a more efficient box job process. The breakup of the scripts allowed for better record keeping, unique sequential file naming schemes and allowed us to better pinpoint just exactly where problems may have come from in the first place. In the financial industry the vitality of efficient automation processes cannot be understated. [Insert more stuff about what we did/importance]

**19.) Script snippets, key locations of improvement, more text details, project thoughts and wrapup of section before jump to automation discussion [\*tbd]**

**20.) Script snippets, key locations of improvement, more text details, project thoughts and wrapup of section before jump to automation discussion [\*tbd]**

**21.) Analysis of Automation: Risks**

**22.) Analysis of automaton: Rewards**

**23.) “Forward 2033”: Citi and Automation**

**24.) Final Thoughts:**

-Opinion on Citi and tech operations (specifically regarding Prod Support):

-Experience:

-Knowledge gained:

-Strengths and weaknesses of intern program: