

Incident Report

REPORT DATE/TIME: April 19th, 2016 / 10:00 am

CONFIDENTIALITY

Distribution of this document is limited to customers of Trapp Technology who experienced a service disruption on Friday April 15th, 2016.

Access should only be granted to those with a business related need-to-know. If you have any questions pertaining to the distribution of this document, please contact Joshua Weidman, VP of Technology.

POINT OF CONTACT (POC) INFORMATION

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TITLE: VP of Technology

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SUMMARY

PROBLEM: Basic description of the incident

TIMELINE: Duration of the incident (Start to Finish)

SOLUTION: Resolution of the Problem

GO-FORWARD PLAN: Trapp Technology's internal next steps

PROBLEM: DETAILS OF THE INCIDENT & ROOT CAUSE

On Friday April 15th, a power outage was suffered inside of the colocation facility that Trapp Technology houses their cloud environment.

The power outage lasted a total of 45 seconds and was caused by a technician performing routine data center maintenance. The root cause of the issue was a mislabeling of electrical panels inside of the power breaker by a third party electrician. Instead of shutting power off to an inactive rack inside of the data center, power was shut off to one of Trapp Technology's production racks.

Expansion of this root cause is simple human error. Trapp Technology is performing ongoing due diligence to establish the source of the mislabeling and whether there is justified actions to be pursued.

Post-Resolution Trapp Technology, over the weekend, performed a quality control assessment of all internal architecture and blueprint documentation to ensure all connections are correct, as well as verify there were no other physical data center assets documented inaccurately. This assessment was performed side by side with our data center.

TIMELINE: THE DURATION OF INCIDENT (START TO FINISH)

- **APPROXIMATELY 10:00 AM PDT:** Power lost inside data center, immediate access to customer systems were lost
 - Approximately 45 seconds post power loss, power was restored
 - Notifications were immediately routed to Trapp Technology support and infrastructure noting the outage and emergency response was enacted
- **APPROXIMATELY 10:15 AM PDT:** Customers calls and emails into support begin to filter in, indicating an outage in the platform
- **10:30 AM PDT:** Notification of service outage posted to Trapp Technology website and social media platforms providing ongoing updates throughout the service disruption
- **10:00 AM PST – 12:00 PM PDT:** Initial root cause analysis and solution development and implementation begins
- **12:00 PM PDT:** Virtualization Technology Database Complications Identified
- **12:00 PM – 3:30 PM PDT:** Virtualization Technology troubleshooting – ongoing
- **3:30 PM PDT:** Resolution for Virtualization Technology troubleshooting achieved
- **3:30 PM PDT:** System restore initialized – client by client

SOLUTION: RESOLUTION OF THE PROBLEM

Restoration of power to one of our production environments, while obvious, this was the first step to the resolution of the problem.

Because of the sheer amount of servers that were shut down in the course of the power outage, the solution required much more than a simple re-boot of the environment. During the course of our assessment of the outage, we quickly realized we needed to take numerous complex steps in a very deliberate, phased approach.

The large size of the single rack notwithstanding, the abrupt and improper shut down of the environment, caused collateral damage in the form of virtualization database errors. A large portion of the outage can be attributed to our need to properly troubleshoot the database errors with the virtualization technology in order to appropriately reboot each client's environment. The complication was resolved by implementing our redundant backups for the database, which restored full functionality.

Upon successful completion of the troubleshooting, the team at Trapp Technology was able to then focus efforts on rebooting the system for each individual client, but again, the solution was not as easy as flipping a switch. We needed to restore each affected client one by one to address any potential errors that arose as part of the process and to ensure that data was not negatively affected in any way.

GO-FORWARD PLAN: NEXT STEPS

The service outage experienced by some of our clients was a true disappointment, not only internally but to our clients affected. Trapp Technology has invested countless hours and resources to provide our clients with a world-class cloud environment that can give them the reliability they deserve.

We are taking this incident very seriously. The events that occurred on Friday were not tolerated prior to the incident, and will most certainly not be tolerated moving forward. It was not acceptable by our internal standards as well as those of our clients. But from adversity comes growth.

Alongside our data center, we have done a full quality control assessment of our physical data center assets to confirm labels and documentation is matched and correct. We have reviewed our architecture blueprints to ensure our documentation as always is accurate and allows our team to perform ongoing necessary maintenance to ensure our cloud environment can provide 99.9%+ uptime for our clients.

Having gone through this incident, we are also reassessing our internal processes related to emergency response and communication efforts. We are fine tuning these processes to provide much quicker turnarounds on recovery as well as necessary communication direct to our clients.

As we have in the past, we will continue to invest in the best and brightest IT talent, tools and technology to ensure our clients have an experience that is second to none. Until last Friday, we had never incurred an outage of our infrastructure and we intend to uphold that standard moving forward even as we put this incident in the rear view mirror.

We are very sorry for the disruption of service and vow to do everything we can to build back your trust.

FREQUENTLY ASKED QUESTIONS

- **Q:** What was the basic cause of the incident?
A: Human error, mislabeled electrical breaker panel.
- **Q:** What is Trapp Technology doing to prevent this incident from reoccurring?
A: A quality control assessment was performed with our data center over the weekend to ensure documentation is accurate and up to date.

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