Maintaining 100% Uptime Throughout a 1,000-Year Storm

*HOW STREAM DELIVERED COMPLETE ACCESS AND AVAILABILITY
DURING AN UNPRECEDENTED WEATHER EVENT*

STREAM
DATA CENTERS

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D A T A   C E N T E R S

In Time of Crisis, Data Security Should Be a Given

The Situation
A Deadly,
Unpredictable Storm

Preparation
The Key to Security

Execution
Knowing Exactly What
To Do, and Doing It

Reflection
The Stream Data
Centers Difference

When lives are at stake, the last thing businesses want to worry about is the health of their IT systems. Fortunately for customers of Stream Data Centers, when 1,000-year storm Harvey came to town, they didn't have to.

THE SITUATION — A DEADLY, UNPREDICTABLE STORM

Businesses in the Houston area anticipate a certain amount of flooding — the remnants of tropical storms bring abundant rain every year. But in August of 2017, a tropical storm took a turn that resulted in unprecedented destruction beyond even the most extreme worst-case scenario.

As Tropical Storm Harvey approached the coast and intensified to Hurricane level, it followed the expected path and made landfall near Port Aransas. Rather than continuing inland, however, the storm circled back to sea, strengthened and headed directly into Houston — where it stayed. The team at Stream Data Centers Houston, which had been braced for up to 15 inches of rain, realized that a much larger risk was at hand. As the day progressed, Harvey revealed a strength and scope that defied description by storm forecasters.

The impact to business and industry would be significant, but Houston residents faced more immediate danger as the water rose and threatened lives and property. For the time being, the only priority was survival. And the Stream Data Centers facility in The Woodlands was ready for action, so its business customers could focus on just that.

PREPARATION — THE KEY TO SECURITY

For Stream Data Centers, emergency response preparation is second nature. The standing goal for data integrity is protection, and any event that threatens business continuity brings out the dedication to that goal. The emergency command bridge is the company's predetermined, documented plan of action for maintaining stability during critical load situations. Activating the plan means all hands on deck, with the ability to pull together quickly and take on the roles necessary to ensure smooth operations in the midst of harsh conditions. Each team member has the authority to make decisions necessary to the role.

For the data facility at The Woodlands, which houses four Houston customers, five elements were critical:

- Sustaining uptime
- Preventing losses
- Protecting from natural disaster
- Diverting flood waters
- Maintaining accessibility to the facility

To deliver on those elements, site selection is everything. The Woodlands facility, located 30 miles north of Houston, fulfills two important requirements for an area at risk of floods:

- **Multiple paths of access** — The planning team drove all the roads that led to the site, noting which had higher elevations that would deflect flood waters.
- **High ground** — The building site itself is elevated, for good drainage. The two substations that feed power to the data center are also on higher ground. The site is outside of FEMA's 500-year flood plain.

Construction of the building, from the ground up, also is crucial. The data center facility at The Woodlands is elevated an additional 3 feet from the ground with different levels of scuppers that ensure no water penetration above the raised floor. The roof is a single solid membrane designed to prevent even a single drop of water from leaking into the building. The 75,000-square-foot structure is able to withstand 185 mph winds, with a 20-foot concrete tilt wall protecting outside equipment.

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EXECUTION — KNOWING EXACTLY WHAT TO DO, AND DOING IT

Hurricane Harvey seemed to have a mind of its own, defying predictions at every turn. Stream monitored the storm closely, with concern for both San Antonio and Houston facilities. In the early hours before Harvey invaded Houston, the team knew what was coming — and was ready. The continuity plan unfolded quickly.

- Stream Data Centers established the emergency command bridge, led by a company principal in Minnesota. Managing the incident remotely allowed quick, reliable response without the pressure of the crisis situation.

- The incident manager worked with the Houston site manager to develop the escalation and contact sheet for use during the hurricane and distributed it to the team. All Stream security and technical resources understood their roles and expectations for the duration of the hurricane. In early days of the crisis, the incident management team was in constant contact, managing events for 22 straight hours.
- Since members of the Houston team lived within the storm impact area, they focused on 24-hour monitoring of the weather and conditions on the ground. Stream Data Centers leadership emphasized that the first priority must be safety for Houston personnel and their families. Management obtained hotel rooms for their use.
- San Antonio team members headed to Houston, as local personnel drove access routes to find dry roads leading to the data center facility at The Woodlands. Dallas team members brought supplies and extra fuel the following day.
- During the seven-day event, almost 29,000 square miles received at least 20 inches of rain. Almost 4,000 square miles had more than 40 inches. Nothing in the historical record approaches the scale of Hurricane Harvey. Approximately 336,000 people lost power, and tens of thousands had to be rescued. But the data center facility at The Woodlands had no disruption of service — 100 percent uptime — and not a single drop of rain got into the facility. Data was safe and completely accessible throughout the incident.

REFLECTION — THE STREAM DATA CENTERS DIFFERENCE

As Harvey weakened and the declaration of emergency ended, operations at The Woodlands data center slowly returned to normal, albeit with some affected personnel still unable to get to work. At every juncture throughout the crisis, Stream Data Centers demonstrated its commitment to safety and resilience, maintaining the integrity of the data center environment and protecting customer data. The team pulled together to get the job done, exemplifying high performance and genuine caring about each other and customers.

Notably, while Harvey was at peak destructiveness, the customers of The Woodlands facility did not inquire about the integrity of the facilities protecting their IT systems. Even in a 1,000-year storm, businesses with a lot to lose trusted Stream Data Centers that all would be well.

And it was.

ABOUT STREAM DATA CENTERS

Stream Data Centers has provided premium data center services since 1999, with 90% of inventory leased to Fortune 500 customers. To date, the company has acquired and developed a broad national portfolio of data center properties, with leadership remaining consistent.

Stream speculatively develops turnkey data centers for Hyperscale and Enterprise users. Additionally, Stream develops Build to Suit Data Centers and operates an Energy Services practice with a focus on low cost, renewable energy solutions. All of Stream's facilities feature carrier-neutral, low latency connectivity to network and public cloud providers. Above all, Stream is dedicated to improving the data center experience through exceptional people and service.

Stream Data Centers is a subsidiary of Stream Realty Partners, a full service commercial real estate investment, development and services company.

Learn more about Stream's Houston-area LEED Silver-certified data center at www.streamdatacenters.com/houston.

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