



**City of Dallas**

# **State of Cybersecurity**

**ITS Risk Management, Security,  
and Compliance Services**

Dr. Brian Gardner, CISO  
ITS Risk Management, Security,  
and Compliance Services  
The City of Dallas



# Executive Summary

IT Services & Cybersecurity



# DFW Technology Leader



- DFW ranks second on a list of the best tech towns in the U.S., with both Silicon Valley and San Francisco slipping in the third annual ranking.
- CompTIA then ranked the metros on cost of living, number of postings for IT jobs, and projected IT job growth over the next year as well as the next five years.
- DFW jumped from No. 7 last year to No. 2

*“The conventional technology enterprises have set the tone for the Dallas tech scene, while emerging technology companies are taking it to the next level.”*



# Municipalities & Critical Infrastructure at Risk



## Municipalities

- Tulsa – May 2021 ??
- Atlanta - Estimate of \$9.5 Million Cost
- Baltimore - \$18.2 Million in Recovery Costs
- Lake City, Florida – First City to Pay Ransom



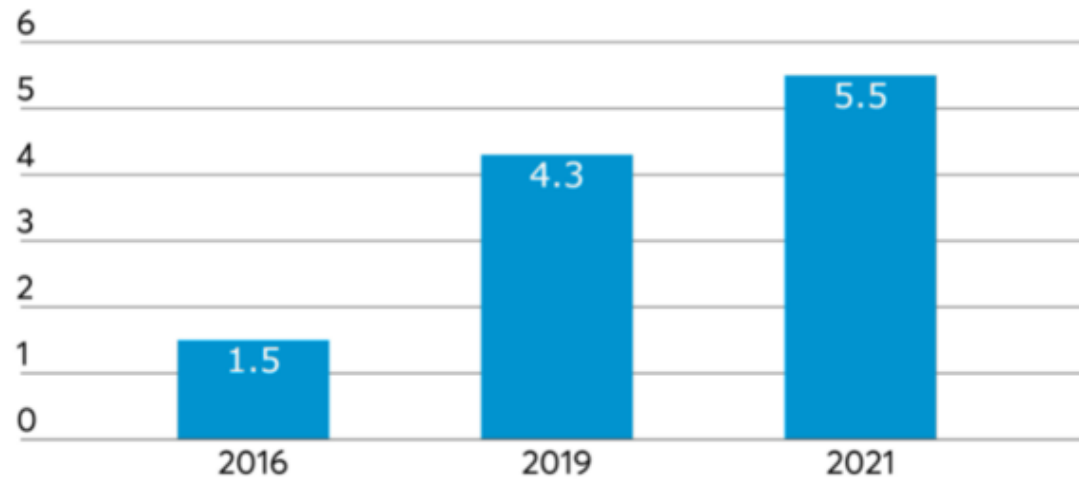
## Critical Infrastructure

- Colonial Pipeline – \$4.4 Million
- Oldsmar, Florida – Breached Water System





# Factors Leading to Successful Attacks



Ransomware attacks per minute

- Lack of Spending on IT Upgrades & Practices
- Lack of Appropriate Security Expenditures
- Poorly Maintained Systems
- Decentralized Control of Technology
- Decentralized Budget Control
- Poor Resiliency Planning

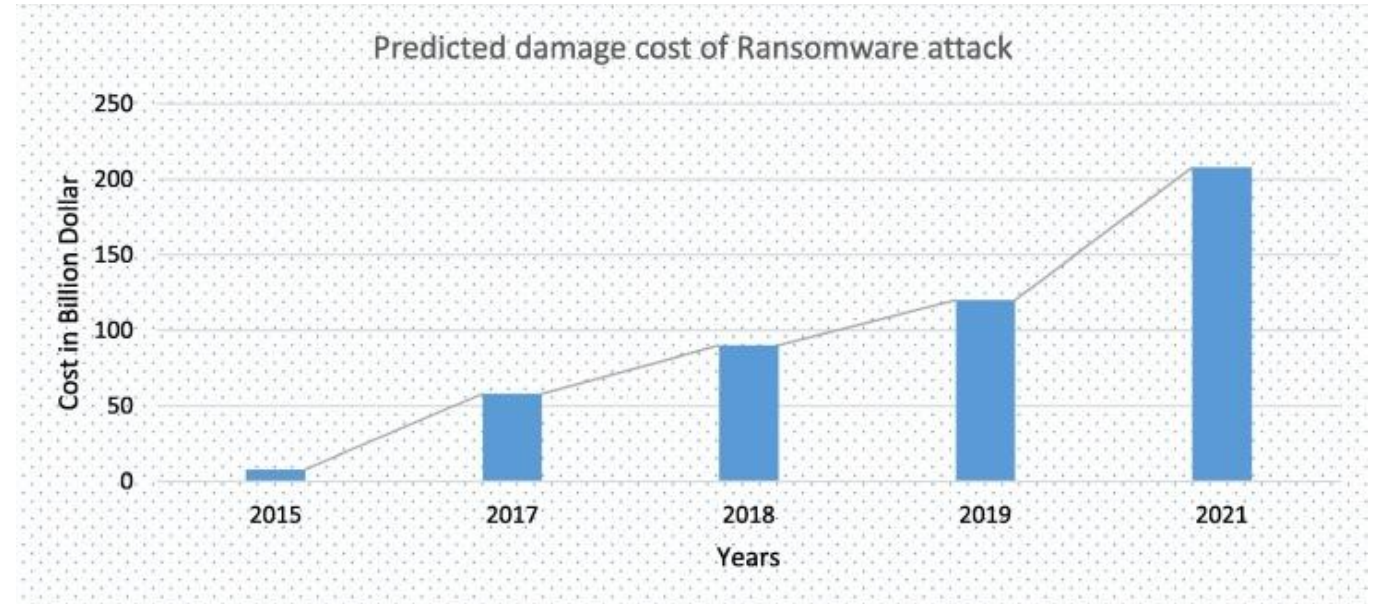
#1 Core Cybersecurity practices – *Including Resiliency*



# Impact in Texas



- 78% of states had at least one municipality attacked; Texas led all states in attacks by a wide margin.
- Over the past 2 years, there were 177 reported ransom attacks on government entities in 39 states.
- Three Texas entities, Laredo, Robstown, and Grayson County, were hit twice.

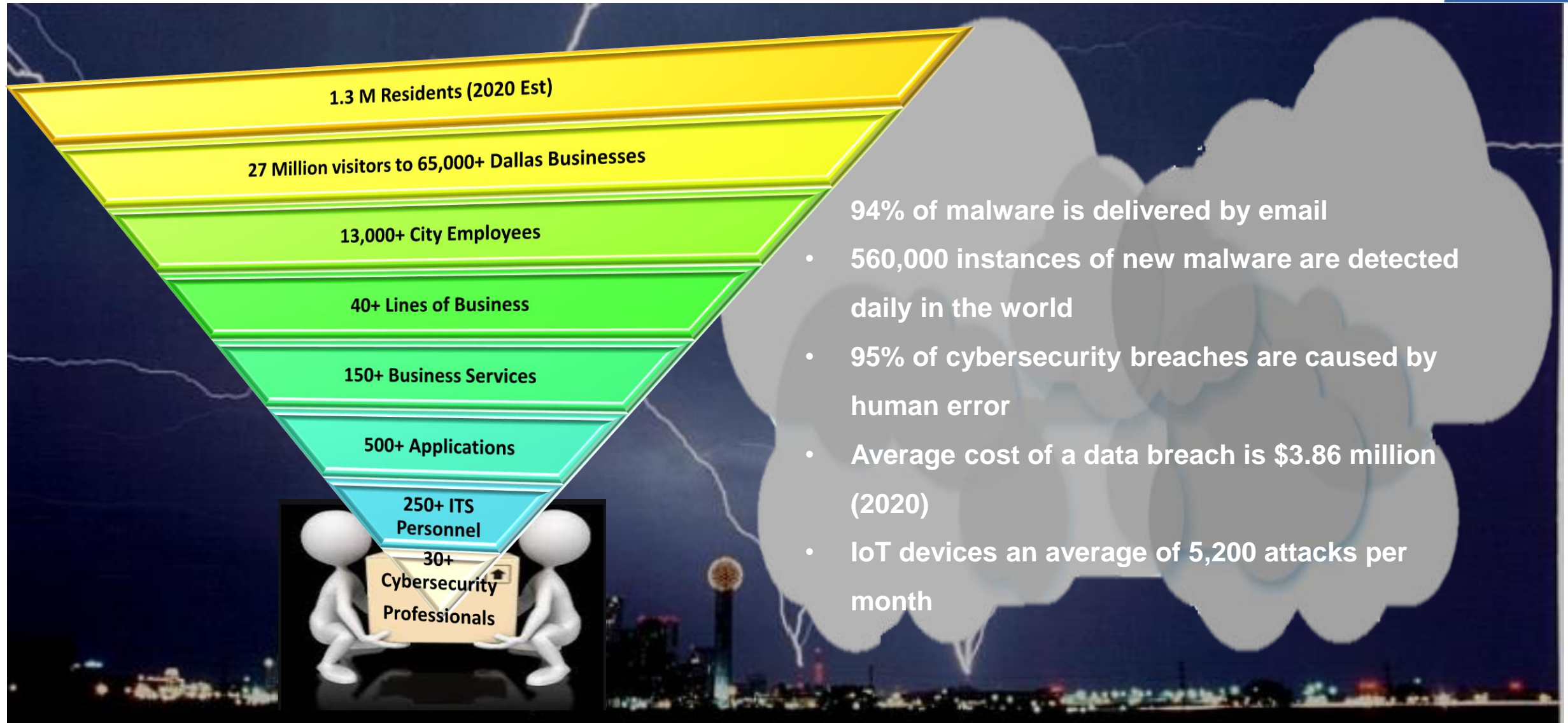


Cost of Ransomware Increasing

*Most of these attacks occurred through phishing emails and compromised third-party partners.*



# City of Dallas ITS Security Division



- 94% of malware is delivered by email
- 560,000 instances of new malware are detected daily in the world
- 95% of cybersecurity breaches are caused by human error
- Average cost of a data breach is \$3.86 million (2020)
- IoT devices an average of 5,200 attacks per month



# City of Dallas Employees



Cyber-aware Culture



City of Dallas







Everyone is  
responsible for the  
security of information  
within the Organization





# Prevention & Resiliency

Policy, Standards, & Technology



# G20 Smart City Resolution



- Leadership and Accountability
- Security of information assets
- Security of IoT devices
- Revision of information security measures
- Security incident prevention
- Incident Response



G20  
Global  
Smart Cities  
Alliance





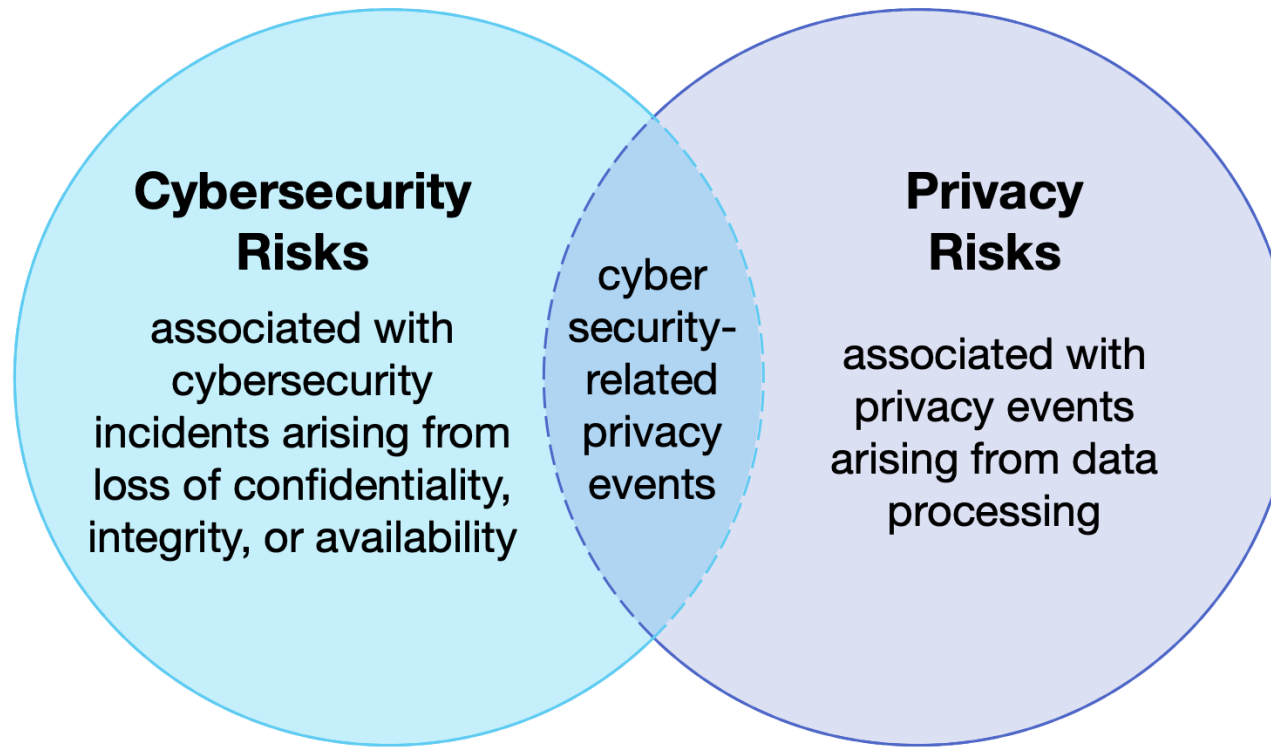


“Provides a common language that allows staff at all levels within an organization—and at all points in a supply chain—to develop a shared understanding of their cybersecurity risks.”

As we become data centric, we are processing huge volumes of personal data while complying with a complex patchwork of regulations and responding to resident concerns around how information is used



# Security & Privacy



*“Privacy protection and cybersecurity should be thought of as interconnected: as more and more personal information is processed or stored online, privacy protection increasingly relies on effective cybersecurity implementation by organizations to secure personal data both when it is in transit and at rest.”*



# Dallas a Cybersecurity Center of Excellence



## Cyber Fusion Center

Unifies security functions such as threat intelligence, security automation, threat response, security orchestration, and incident response.

A single connected unit with the capability to coalesce all comprising units for detecting, managing, and responding to threats in an integrated and collaborative manner.







- Digital space only available to genuine U.S.-based government organizations
- Improve residents' trust in their government's online presence
- Nearly impossible to imitate or fake

*Residents look to government websites for information that's useful, timely, and informative.*

# Disaster Recovery - Texas Winter Storm



- Major impact to Critical Infrastructure
- Overwhelmed the state's electricity infrastructure and created a water supply issue.
- City's operational resilience is of the utmost importance.
  - ✓ including our third-party partners to meet those requirements.



*“Preparation includes table-top exercises and drills to ensure that all members of the organization are aware of protocols and procedures ahead of a significant weather event. Often, a professional meteorologist is asked to develop a mock weather scenario, provide briefings, and answer questions throughout the drill”*



# Resiliency

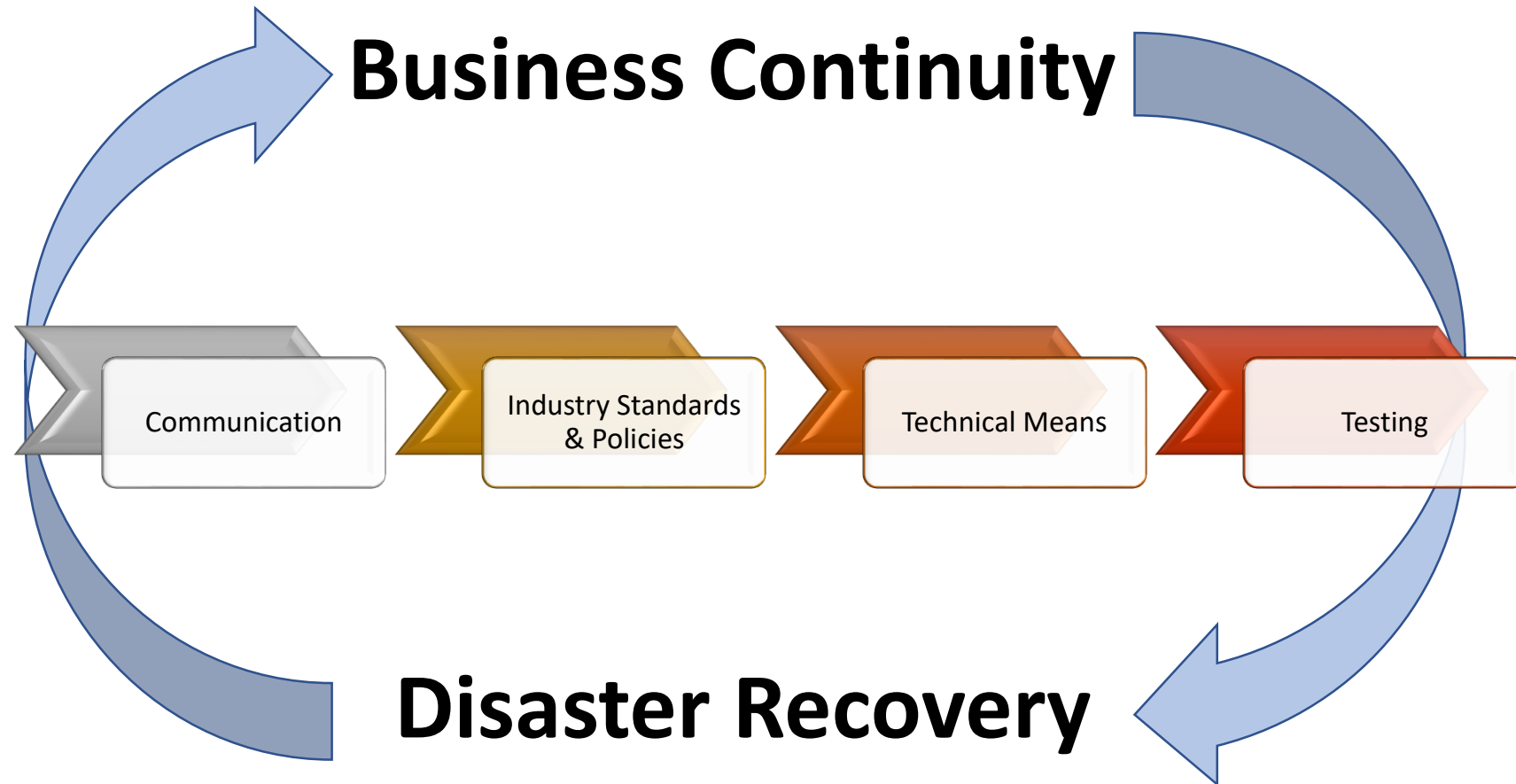


- More resilient to ransomware ahead of attacks
- Make sure that we have the ability to survive an attack and to continue critical operations
- Reduce the recovery time to zero; we won't need to pay ransoms - we will be able to ignore them

*“The ultimate goal for defenders has to be maintaining resilience and removing fragility.”*









# Dallas as a Technology Leader

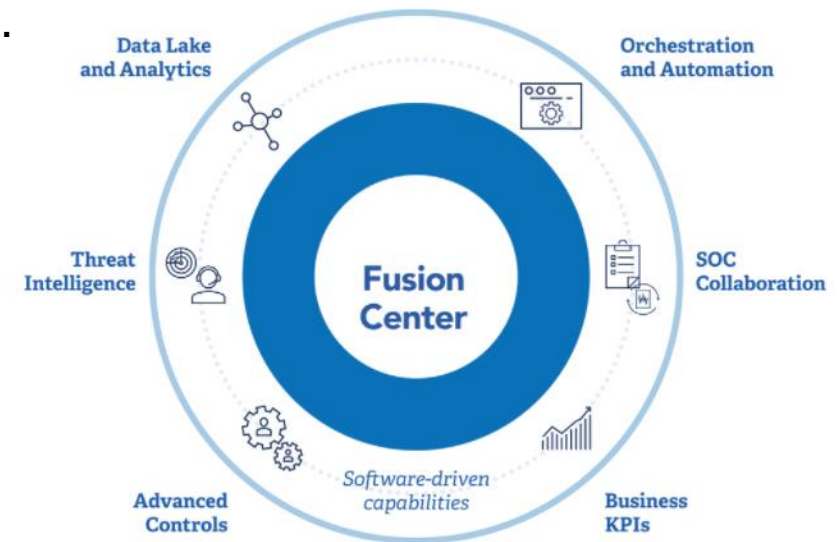
Policy, Standards, & Technology



# Leader in Cybersecurity



1. Provide more cybersecurity services to City of Dallas residents and businesses.
2. Sharing information can be key to the “herd immunity”
  - Local governments to coordinate outside of their typical state silos through the establishment of cyber monitoring and incident response services provided across jurisdictions.
3. As the City adopts more and more technology footprint e.g., IoT, Artificial Intelligence, Cloud, 5G, Quantum, and Mobile, all lead to cybersecurity risk.





# Cybersecurity Program Objectives



In Information and Technology Services, our mission is to provide a secure, responsive, resilient, and reliable network enabling city departments to better serve the residents of Dallas.

- **Lead and Support Dallas as a Global Cybersecurity Principal**
- **Encouragement to bring Technology Infrastructure as a Technology Leader**
  - ✓ Data Center
  - ✓ City Wide Fiber Ring
  - ✓ Cyber Fusion Center
- **Funding for Technology must include Cybersecurity investment to manage Risk**



# Future City Council Action



- **Adoption of the G20 policy as resolution for Technology & Cybersecurity (target Q1 2021-22)**
- **Support Budget requests for Technology Infrastructure & Cybersecurity improvements to provide:**
  - **Communication and Cooperation**
  - **Resident cyber-awareness programs**
  - **A resilient technology infrastructure**
- **Recognize the roadmap to resiliency does NOT mean “Bad things won’t happen”**
- **Support the cybersecurity conversation as a mission critical initiative**





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