RSAConference2015

San Francisco | April 20-24 | Moscone Center

SESSION ID: GRC-T08

Risk-Ops at Scale: Framework Operationalization to Address Business Risk



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Everything's Bigger in Texas

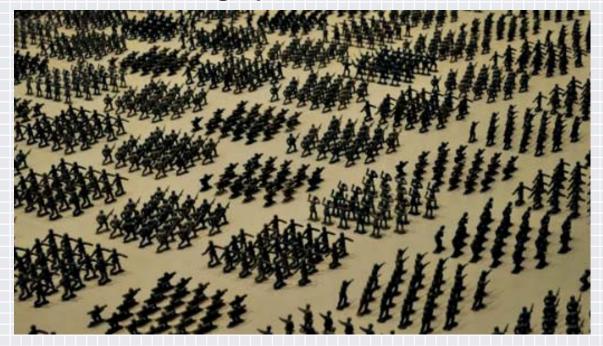
- 310,959+ state employees
- \$96.9 billion budget (25 on the Fortune 500)
- 3.5 million recipients of food assistance
- 4.1 million residents in the Medicaid program
- 5+ million students
- \$140 Billion in Texas retirement systems







The bad guys see us as one



but we fight with 200 separate armies







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- Challenges Facing the State of Texas
- Texas Cybersecurity Framework
- Instrumenting the Framework



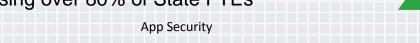


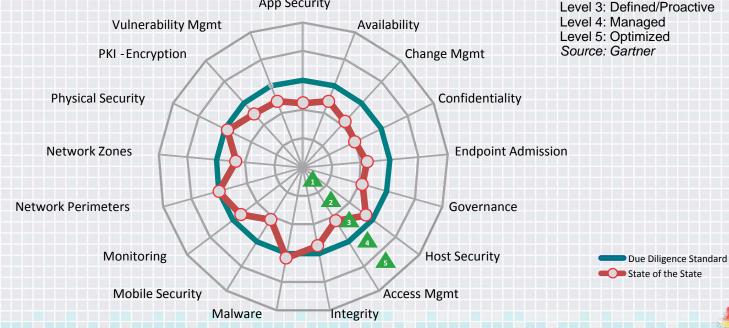


Security Assessment Benchmark

Security assessments Conducted 2011 through 2014

*Over 40 agencies comprising over 80% of State FTEs







Maturity Level Definitions

Level 2: Developing/Reactive

Level 1: Initial/Ad Hoc

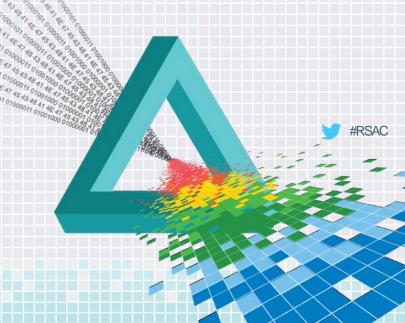
Trends

- IT staffing challenges
- Data classification
- Security governance / awareness
- Identity and access management standardization
- Security in software development
- Consistent event monitoring and analysis
- Internal network segmentation











Objective 1:

Evolve the Texas Cybersecurity Framework to establish adaptable state policy, standards and guidelines that define appropriate levels of security and risk management for agencies and institutions of higher education.







- ◆ Agency security plan template Implemented in January 2014
- ◆ Vendor product / service template Implemented in March 2014
- ◆ Updated information security rule Adopted February 2015
- ◆ Security control standards catalog Adopted February 2015
- ◆ Guidelines and whitepapers Ongoing effort
- ◆ Governance, risk and compliance solution in Progress







Agency Security Plans

| FUNCTIONAL AREA | SECURITY OBJECTIVE | | | | | | |
|-----------------|---|--|--|--|--|--|--|
| Identify | Privacy and Confidentiality Data Classification Critical Information Asset Inventory Enterprise Security Policy, Standards and Guidelines Control Oversight and Safeguard Assurance Information Security Risk Management Security Oversight and Governance Security Oversight and Governance Cocurity Compliance and Regulatory Requirements Management Cloud Usage and Security Security Assessment and Authorization / Technology Risk Assessments External Vendors and Third Party Providers | | | | | | |
| Protect | - Enterprise Architecture, Roadmap & Emerging Technology - Secure System Services, Acquisition and Development - Security Awareness and Training - Privacy Awareness and Training - Cryptography - Secure Configuration Management - Contingency Planning - Media - Physical Environmental Protection - Personnel Security - Third-Party Personnel Security - System Configuration Hardening & Patch Management - Access Control - Account Management - Network Access and Perimeter Controls - Internet Content Filtering - Data Loss Prevention - Identification & Authentication - Spam Filtering - Portable & Remote Computing - System Communications Protection | | | | | | |
| Detect | Malware Protection Vulnerability Assessment Security Monitoring and Event Analysis | | | | | | |
| Respond | – Cyber-Security Incident Response | | | | | | |

- 40 Security objectives defined
- Aligned to "Framework for Improving Critical Infrastructure Cybersecurity" released by NIST in February 2014





Agency Security Maturity Levels

| MATURITY LEVEL | DIR DESCRIPTION | KEYWORDS |
|-------------------|--|---------------------------------------|
| 0 | There is no evidence of the organization meeting the objective. | None, Nonexistent |
| 1 | The organization has an ad hoc, inconsistent, or reactive approach to meeting the objective. | Ad-hoc, Initial |
| 2 | The organization has a consistent overall approach to meeting the objective, but it is still mostly reactive and undocumented. The organization does not routinely measure or enforce policy compliance. | Managed, Consistent, Repeatable |
| 3 | The organization has a documented, detailed approach to meeting the objective, and regularly measures its compliance. | Compliant, Defined |
| 4 | The organization uses an established risk management framework to measure and evaluate risk and integrate improvements beyond the requirements of applicable regulations. | Risk-Based, Managed |
| 5 | The organization has refined its standards and practices focusing on ways to improve its capabilities in the most efficient and cost-effective manner. | Efficient, Optimized, Economized |





Highlights and Roadmap Improvements

Successes to build upon

- Spam filtering
- Account management
- Disaster recovery
- Security systems management

Areas for improvement

- Data loss prevention
- Secure systems services, development and acquisition
- Cloud usage and security







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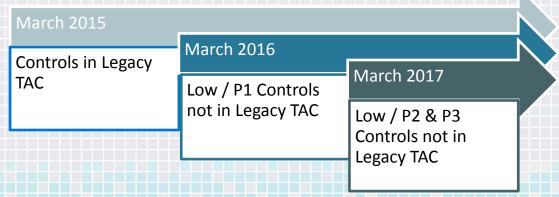






Phased approach

- Legacy TAC 202 controls move into the Security Control Standards as "Phase 1" controls
- Other NIST controls will be prioritized for implementation 1 year or 2 years out
 - Phase 2 = Low/P1 controls NOT in current TAC
 - Phase 3 = Low/P2&P3 controls NOT in current TAC

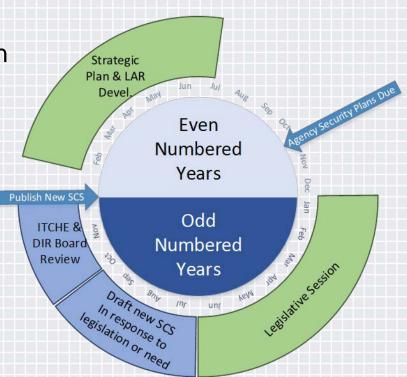






State of Texas Governance Timeline

- Updates to the Control Catalog can be based on
 - Legislation
 - Identified need
 - Changes in technology
- Changes published in time to be included in Strategic Plan and LAR decisions

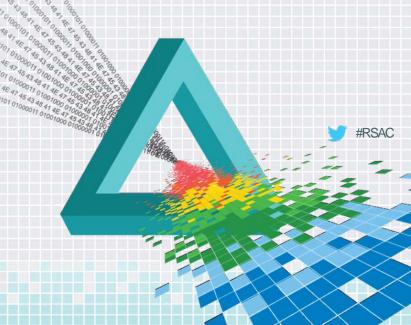




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Instrumenting the Framework....
Forming a Single Army





Instrumenting the Framework

Objective 2 - Instrument the Texas Cybersecurity Framework within the GRC platform

- Enable the Agency Security Plan process
- Define Program Maturity Risk Assessment Methodology



Objective 3 - Support Agency Risk Management Processes

Provide enterprise risk management capabilities within the GRC platform



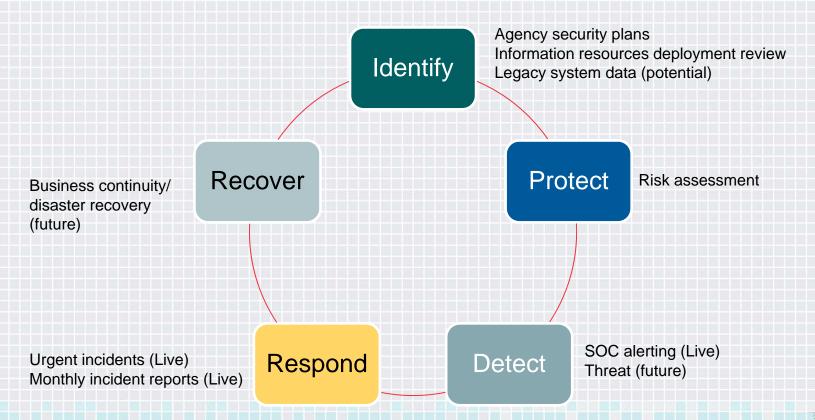
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#RSAC

GRC Tool Implementation







Incident Response

Issues

- No analytics capability for critical incidents
- Inconsistent reporting from agencies

Solution

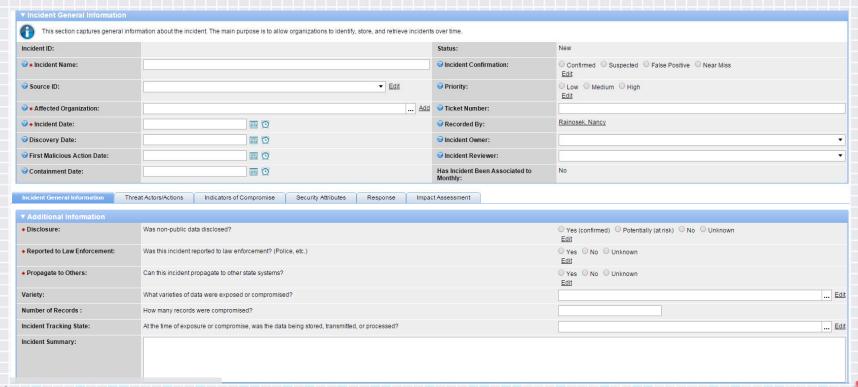
- Urgent incidents must be reported through the GRC Incidents module
- Using the GRC platform as your incident response system will automatically generate your required monthly report
- Monthly report uses Veris framework for standardized reporting







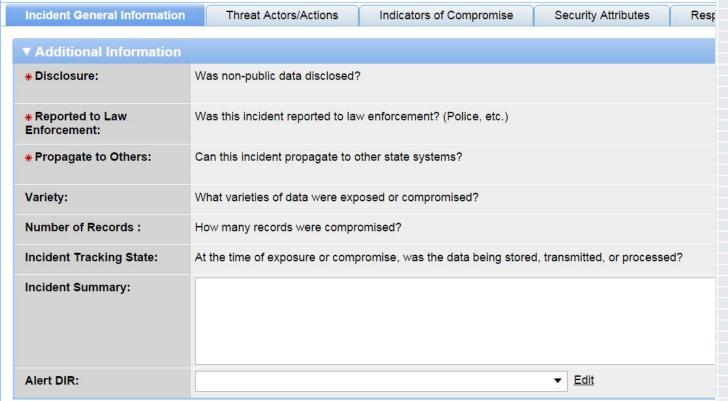
Urgent Incident Reporting System







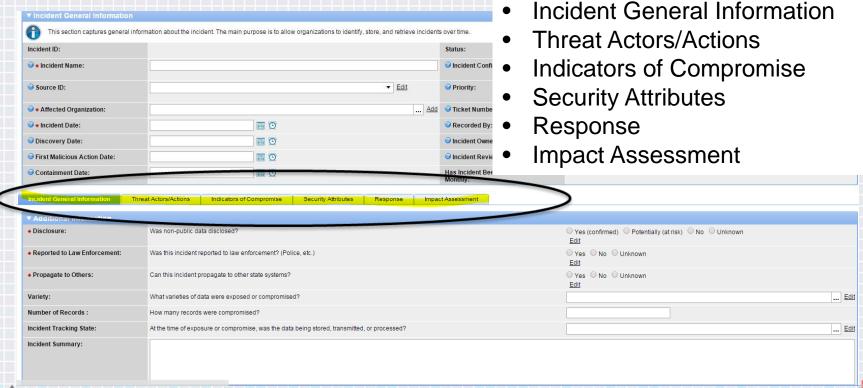
Urgent Incident Reporting System







Urgent Incident Reporting System







Monthly Incident Reporting

Totals Impact ▼ Previous Incident Threat Actions Logged During This Period The numbers in this section will automatically populate from the Incident Application and the referenced incident records in the section below called "Incidents Logged During This Period" 13 Malware Threats Logged During Physical Threats Logged During Reporting Period: Reporting Period: Hacking Threats Logged During Error Threats Logged During Reporting Period: Reporting Period: Misuse Threats Logged During Environmental Threats Logged Reporting Period: **During Reporting Period:** 15 Social Engineering Threats Total Number of Incidents Logged During Reporting Period: Logged: Addtional Incidents Not Logged in Archer Please enter the totals for each category below in the boxes. For more information on the category, please click the icon next to the text. Please enter "0" if not applicable. Also, note this is in additional please click the icon next to the text. Additional Malware Cleaned by Additional Malware Cleaned by People: Automation: Additional Hacking Incidents: Additional Physical Incidents: Additional Error Incidents: Additional Misuse Incidents: Additional Social Engineering Additional Environmental Incidents: Incidents: Additional Number of Incidents:





Security Plan Template

Issues

- Both plan formulation and analytics difficult using Excel spreadsheets
- Inaccurate responses received because of overriding Excel input
- Inconsistent reporting from agencies

Solution

- Plan reporting must be done using GRC platform
- Analytics and charts are easily generated
- Future versions will include program maturity determination through risk assessment process
- All tied together by NIST 800-53







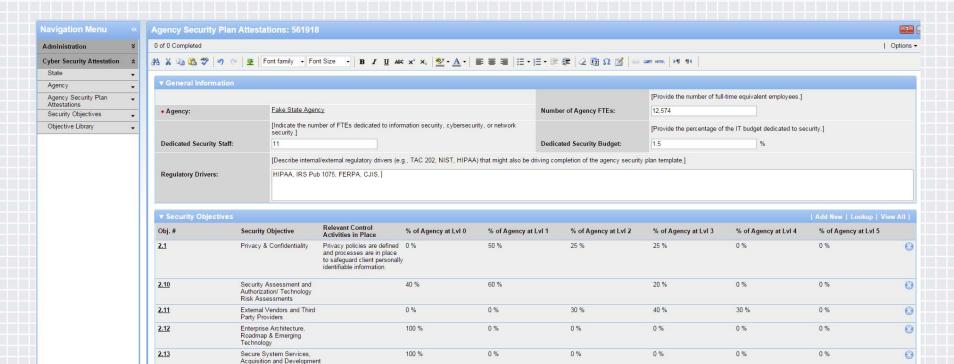
Security Plan Template: Excel Version

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|-----|---------------|---|-------------------------------|--|--------------------------------|---|-------------|--|------------|--|------------|--|---------------------------|--|------------|--|--|----------|---|---|---------------------------------|
| | | | | | | MATURITY LEVEL FOR THE IN | | | | | | | | | | | | | | | |
| | | | | | | LEVEL 0: Man- Existent. There is no evidence of the organization meeting the objective. | | LEVEL 1: Initial. The arganization has an ad has, in consistent, perceptive approach to meeting the objective. | | LEVEL 2: Repeatable. The organization have consistent averall approach to meeting the objective, but it is still mostly reactive and undocumented. The organization does not requirely measure or soforce | | LEVEL 3: Defined. The premisstion has a documented, detailed approach to meeting the physicism, and regularly measures its compliance. | | LEFEL 4: Menage 4. The unquintation was an established risk management from owns it to measure and evaluate risk and distograte improvements beyond the requirements of applicable requirements of applicable requisitions. | | | LETEL 5: Optimized. The requirement of the received and practice from the first transfer and practices from the received and practices from the received and th | | | | |
| | | | NIST | | | | | | | | | | | | | | | | | ROADMAP | |
| | FUNCTIONAL AF | SECURITY | FRAMEWORK | | RELEVANT CONTROL ACTIVITIES IN | PATTERN CONTROLS | × OF AGENCY | PATTERN CONTROLS | × OF AGENO | | × OF AGENO | | × OF AGENCY AT LEVEL 3 | PATTERN CONTROLS | | HOW IS ETTECTMENTS OF THE CONTROL MEASURED: | | | HOW IS THE AFFICACION OF THE CONTROL MEASURED: | (Whatstops with the agency take in the next 12 months to improve its motority) | OHALLENGES TO IMPLEMENTATION |
| 2.1 | | | MAPPING | Ensuring the appropriate security of retained | PLACE | Privacy Policies denotesist | ATLEVELO | Privacy is rarely considered | ATLEVELT | Privacy ir treated in a | ATLEVELZ | Applicable privacy at and arde and | AT LEVEL 3 | The organizational/trusture | AT LEVEL 4 | THE CONTROL MEASURED? | Privacy is treated by the | ATTEVELS | THE CONTROL MEASURED? | months to improve its moturity) | IMPLEMENTATION |
| 2.1 | Identify | Privacy & Canfidontieli | ty | Enviring the apprapriate a curity all retained information and approved the ring under defined can dillient with required allequends and arrurance. Includes the requirements of HIPAA, I saw Buriness & Commerce Code, and agency defined privacy policies that include and capandy purn requistory and legal include. | | Privacy Policies danatoxist | | Privacy is rarely candidered when determining the cantrally placed an information | | Privacy is treated in a privacy in treated in a sequentiation, but is mainly a reaction to external incidents arregulations. | | Applicable privacy standards and re-gulations are incorporated into the organizations see curity program | | The meaninstinual treature repports of neuron privacy and canfiduatiolity as a distinct discipline. | | | Privacy is treated by the preparization as a business output. | | | | |
| 4 | | | | roquiroments far establishing | | | | | | | | | | | | | | | | | |
| 2.2 | Montify | Date Clazzification | ID.AH-5 | Date of contributions provided or for measurable managing data was and information in managing data was and information in managing data was and information or hard data withing to the information of his and data withing to the second of th | | Deto clarification policies and procedures donat exist | | Date d'artification paliciam società vel d'artification re- sicea l'artification re- inceau trat, un ciliable und incecurata, d'hartramm- partra d'ha reposization havu edgate dia prestice a zonditorinan vanzitivo data d'artification. | | Date classification policies and processes are defined and responsible. Acress the exquirestime, there is a common understanding of what are the areasistation, must important and constitution formation. Date numbers have been identified for meating. | | The arguinstainn's detection of interest and | | Date im noneged by technology that requires classifications read with a created. Automoted galliciae nave date date created. Automoted galliciae naves date in created and plantified a create that or qualitation. Date of anylice attentions are considered in a create the created and the consideration of | | | Date in managed har of an dusprification foulth what allips to haringer need and misrian criticality. | | | | |
| 2.3 | Mentify | Oritical Information Agret Inventory | ID.AH-1 through ID.AH-5 | Identification and primitive time of all of the are quice elimin. From extension, your part when the primitive time of the primitive time of the total control of the primitive time of the table time. The primitive time of the applied common rure the width the server impart once. | | The organization days not have invantation of applications, therefore and other charte, and other charte, can't date there and date there are the charter and date in uncantralled. | | The are entire than her politics for parameters are the continued to the continued that are the continued to | | horostary paliciae and presenter y paliciae and presented and reportable. Employer cammanly per farm playrical inventory, but may warame sate discovery methods to identify areas, information in care do discovery. Herduser in a database. Herduser, rafturer, and data areas are visualizaperately, not a ringle camplex areas. | | The argument exist in their ideast field dates are fair as relational for its advanture are type as find formation system when update that full, extractly active date and system interesting system in the secondary part on investment at least to account yet a contract of the secondary state of the secondary and the secondary of the secondary dates are supported in the Secondary and the secondary dates are supported in the Secondary secondary and the secondary sec | | Become of present entrels, it is re- that a near information system or type of deta is introduced into the required in the deta end system to be a second of the second of the contract in the date and system that as information system using house inoride the arequirestion and controlly ordered information arrives are two-field and that out of manuscrafts is detained information the arrive tracked and tent out of manuscrafts is detained information than arrives the second of the controlled that confident the second of the second o | | | Republish, out of covery and area was quarted are in place. There is a sentiar integration with the target part and little from the properties of the proper | | | | |





Security Plan Template in GRC Platform







Risk Assessment

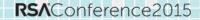
Issues

- Outdated MS Access system
- Mainly Excel spreadsheets
- No way to roll up overall risk for an organization

Solution

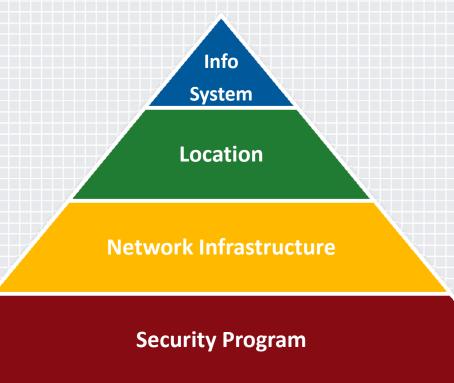
- Risk assessment capability through the GRC platform
- Targeted questionnaires to the people who know the status of controls
- Can roll up to the overall organization
- Questions linked to different authoritative sources





Risk Assessable Units

Break assessments down by component so questions are only answered once.





Security Categorization

#RSAC

Identify Information Type

Select Impact Level

Assign Security Category

| ▼ Information Types | | | | | |
|-------------------------------|---------------------|--|---|------------------|--|
| Information Type | Availability Rating | Availability Special Considerations Confidentiality Rating | Confidentiality Special Considerations | Integrity Rating | Integrity Special Considerations |
| Criminal Incarceration | Low | There may be cases (e.g. emergency bulletins affecting prisoner health and/or safety) in which emergency dissemination of information regarding life-threatening situations is delayed for excessive periods. Such cases can result in a high availability impact level. | | Moderate | In some cases (e.g., instructions regarding a need to isolate a prisoner from the general prison population for personal safety reasons), the unauthorized modification or destruction of criminal incarceration information can result in loss of human life a high impact potential. |
| ▼ Security Category | | | | | |
| Recommended Security Category | y: Moderate | Category | Override: | | |
| Override Justification: | | | | | |
| Additional Documentation: | | | | | |

Criminal Incarceration

Availability – Low Confidentiality – Low Integrity - Moderate

Moderate





Framework Instrumentation

Steps to successful application

- Figure out:
 - where you are
 - where you are going
 - who belongs in your army
- Select a framework
- Develop tools to normalize and share information and link day to day work to your overall objectives







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