ON TOUR | NEW YORK

PASS

Securing the SQL Server Data Platform

Defining a security strategy

Danny de Haan

He/Him

Solutions Engineer

Redgate Software

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He/Him

Solutions Engineer
Redgate Software

I've been working in IT for nearly 20 years in various roles. With over 15 years of experience with SQL Server, I've always placed a strong emphasis on Security, Risk Management, and Compliance for the SQL Server Data Platform. Ensuring industry best practices and regulatory requirements are followed from an infrastructural point of view.

thatinfradba@pm.me

/in/dannydh

Session Objectives

- Understanding the attack surface
- Principle of least privilege
- Monitoring & Auditing
- Defining a strategy

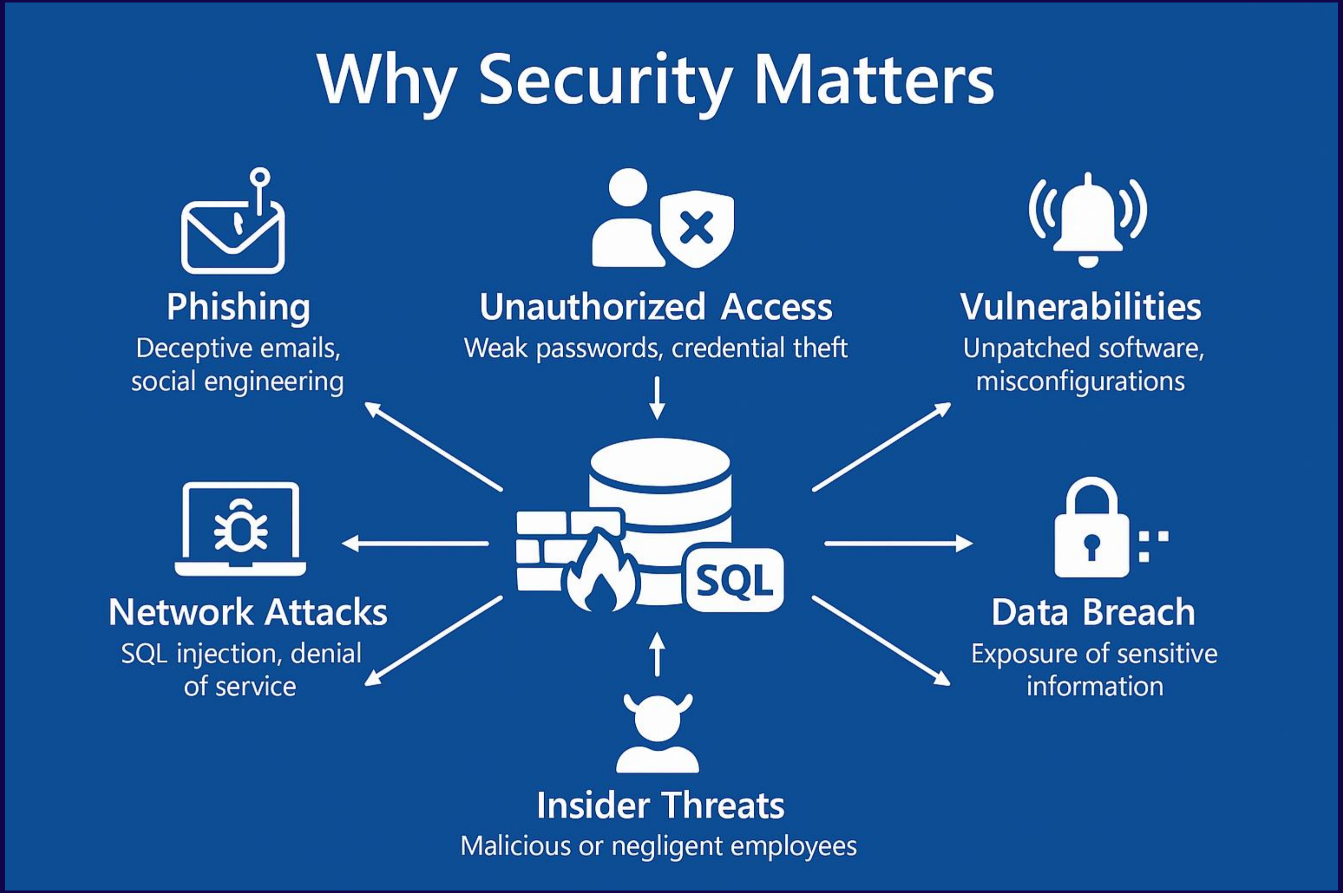
Schedule

- Building your Security Strategy
- Hardening SQL Server
- Authentication & Authorization

!! Break !!

- Encrypting SQL Server
- Monitoring, Auditing & Compliance
- Back-up & Recovery Strategies
- Tools & Resources

Why Security Matters



Why Security Matters

Phishing
Deceptive emails, social engineering

Unauthorized Access
Weak passwords, credential theft

Vulnerabilities
Unpatched software, misconfigurations

Network Attacks
SQL injection, denial of service

Data Breach
Exposure of sensitive information

Insider Threats
Malicious or negligent employees

Chess.com
INSOMNIAC
GAMES
ICI
INDIAN C
MEDICAL
Serving th
cutout.
Lyca
Mobile
duolingo
twilio
KAI
T Mobile
TESLA

Building your Security Strategy

Security-First Mentality

- Mindset vs Mentality
- Thinking like an attacker
- 360 degree Security

Strategy Framework

- Identify
- Assess
- Respond

Strategy Framework

- CIA triad
  - Confidentiality
  - Integrity
  - Availability
- Risk Tolerance / Appetite

Human Layer Security

- Training & Education
  - Educate your team
  - Educate your developers
  - Educate your security team
- Social Engineering Defenses

Hardening SQL Server – Layer by Layer

Perimeter & Network Layers

- Physical & Digital Security Methods
  - Office building
  - Key Cards
  - Data Center access
  - Firewall
  - VPN Access
  - Network Segmentation
- Who has access to what?

Endpoint Security

- Antivirus
- EDR
- Patching

Application Layer

- Design reviews
- (Peer) Code Reviews
- AST
- Pentesting

Mission-Critical Systems

- HA/DR
- Monitoring pipelines
- Data Availability
- Data Encryption
- RBAC

Default SQL Server Installation, what's next?

DEMO

Authentication & Authorization

Identity Strategy

- Where to store credentials?
- Automation?
- SQL Authentication?

Role-Based Access Control

- Administrative tasks
- Applicational tasks

Authentication & Authorization

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BREAK

Encrypting SQL Server

Encryption in Transit

- Transport Layer Security
- Certificates
- SQL Server Fallback Certificate

Encryption at Rest

- Transparent Data Encryption
- OS Compromise
- Read-only access?

In-Memory Encryption

- Always Encrypted
- Client-side encryption

Keys & Secrets Management

- Key rotation?
- Certificate rotation?
- Password Management?

Encrypting SQL Server

DEMO

Monitoring, Auditing & Compliance

SQL Audit & Extended Events

- Change tracking
- Anomaly detection
- Hack attempts

Compliance Mapping

- GDPR / ISO / HIPAA / …
- PCI DSS

- CIS Benchmark
- STIG
- TBA…

Reporting

- Uniform
- Ease of mind
- Compliancy rates
- Always 100%?
- Building a baseline

Monitoring, Auditing & Compliance

DEMO

Back-up & Recovery Strategies

Back-up Planning

- Recovery Models
- Snapshot back-ups
- Back-up schedules

Back-up Tiering

- 3 Tier Back-up Model
  - Tier 0
  - Tier 1
  - Tier 2
  - Tier 3

Recovery Scenario’s

- Recovery Point Objectives
- Recovery Time Objectives
- Recover from which tier?

Tools & Resources

Built-in Tools

- SQL Vulnerability Assessment
- Defender for SQL*

Custom Scripts & Templates

- CIS Benchmark
- STIG Template
- Powershell
- T-SQL

3rd Party Vendors

Chef - Inspec

Chef is not Chef

Redgate Monitor Enterprise

Wrap Up

Summary / Takeaways

- Security aspects of SQL Server
- Monitoring & Auditing
- Principle of least privilege
- Back-up & Recovery
- Tools & Resources

Next steps…

- Goal setting
- Strategies
- Design
- Assess
- Continuously Improve!

Q&A

Thank you

Enjoy the rest of the event!

Danny de Haan

thatinfradba@pm.me

/in/dannydh