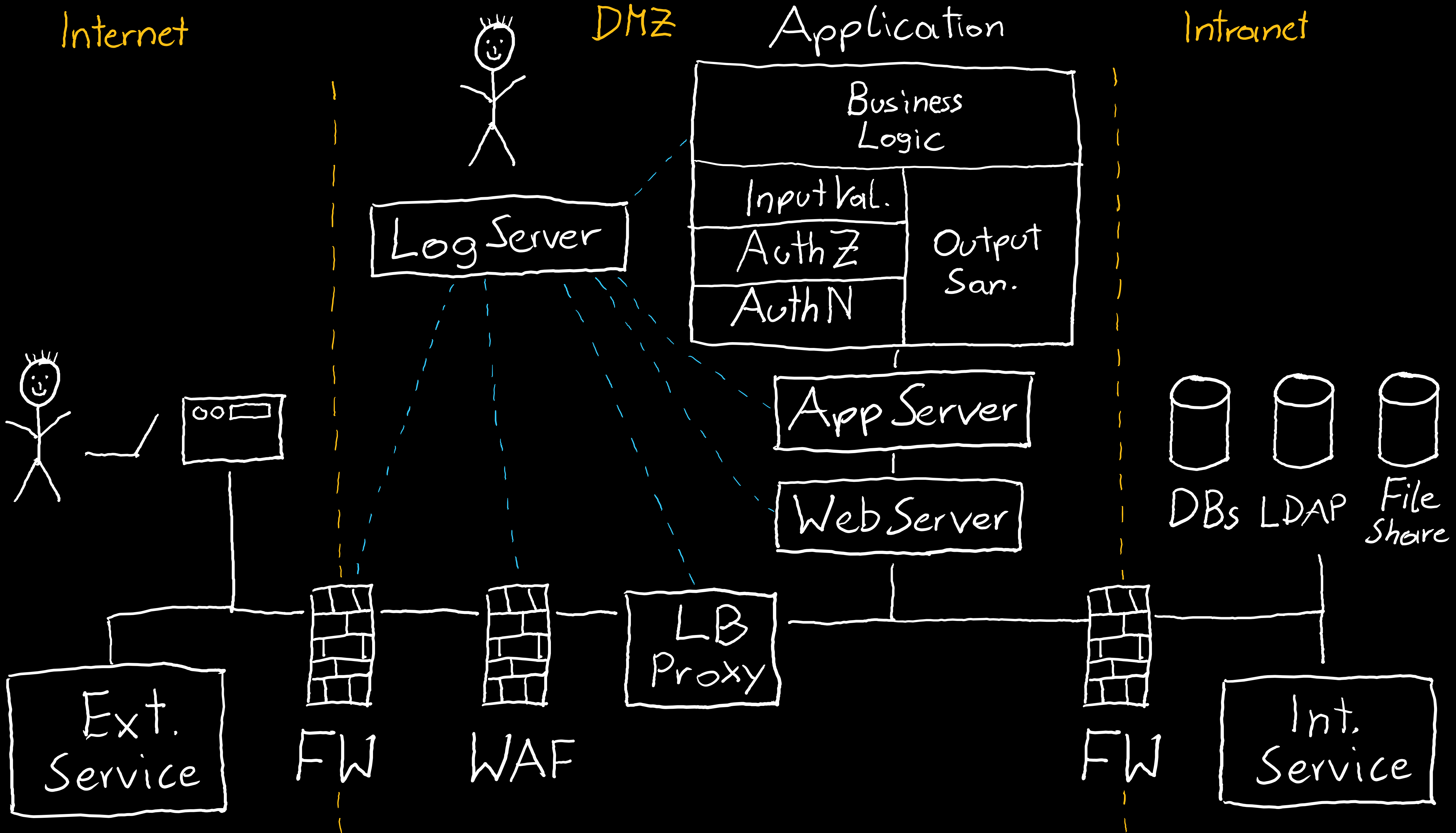
Conclusions

pretty tough place this web, huh…

Rough Overview

1. Introduction
2. Basic Principles and Resources
3. Architecture & Basic Web Procedure
4. Authentication and Session Management
5. Authorization
6. Server and Backend Attacks
7. Remaining Client Attacks
8. General Topics
9. >> Conclusions <<


Internet
DMZ
Application
Intranet
Business Logic
Input Val.
AuthZ
AuthN
Output San.
Log Server
App Server
Web Server
DBs
LDAP
File Share
Ext. Service
FW
WAF
LB Proxy
FW
Int. Service

Security Principles

Earn or give, but never assume, trust.	DNS Hijacking Plaintext Transmission Client-side Manipulation (of cookies) CSRF Forceful Browsing XML External Entitiy (XXE) Clickjacking Insufficient Logging and Monitoring
Use an authentication mechanism that cannot be bypassed or tampered with.	Authentication Automation Attacks
Authorize after you authenticate	Forceful Browsing Insec. Direct Object References TOCTOU (Race Condition)
Strictly separate data and control instructions, and never process control instructions received from untrusted sources.	SQL Injection XPath Injection OS Command Injection Cross-Site Scripting (XSS)
Define an approach that ensures all data are explicitly validated.	Path Traversal Insecure File Upload Unverified/Open Redirects/Forwards Insecure Deserialization
Use cryptography correctly.	Insecure Password Storage Passwords in Source Code
Identify sensitive data and how they should be handled.	Information Disclosure Session Hijacking Session Fixation
Always consider the user.	
Understand how integrating external components changes your attack surface.	Vulnerabilities in 3rd Party Components
Be flexible when considering future changes to objects and actors.	

OWASP Top 10

A1:2017-Injection	SQL Injection XPath Injection OS Command Injection
A2:2017-Broken Authentication	Authentication Automation Attacks Session Hijacking Session Fixation
A3:2017-Sensitive Data Exposure	Information Disclosure Plaintext Transmission Insecure Password Storage Passwords in Source Code
A4:2017-XML-External Entities (XXE)	XML External Entitiy (XXE)
A5:2017-Broken Access Control	Client-side Manipulation (of cookies) Forceful Browsing Insec. Direct Object References Path Traversal TOCTOU (Race Condition)
A6:2017-Security Misconfiguration	Information Disclosure
A7:2017-Cross-Site Scripting (XSS)	Cross-Site Scripting (XSS)
A8:2017-Insecure Deserialization	Insecure Deserialization
A9:2017-Using Components with Known Vulnerabilities	Vulnerabilities in 3rd Party Components
A10:2017-Insufficient Logging&Monitoring	Insufficient Logging and Monitoring
Not in OWASP Top 10 2017	DNS Hijacking CSRF Insecure File Upload Unverified/Open Redirects/Forwards Clickjacking

Most important security techniques

Most vulnerabilities can be avoided by a combination of

- strong authentication and session management

SQL Injection

XPath Injection

OS Command Injection

XML External Entitiy (XXE)

Authentication Automation Attacks

Session Hijacking

Session Fixation

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Plaintext Transmission

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Most important security techniques

Most vulnerabilities can be avoided by a combination of

- strong authentication and session management
- consistent authorization checks

- SQL Injection
- XPath Injection
- OS Command Injection
- XML External Entitiy (XXE)
- **Authentication Automation Attacks**
- **Session Hijacking**
- **Session Fixation**
- Information Disclosure
- Plaintext Transmission
- **Insecure Password Storage**
- **Passwords in Source Code**
- Insecure File Upload
- Clickjacking
- **Client-side Manipulation (of cookies)**
- **Forceful Browsing**
- **Insec. Direct Object References**
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- Cross-Site Scripting (XSS)
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- DNS Hijacking
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Most important security techniques

Most vulnerabilities can be avoided by a combination of

- strong authentication and session management
- consistent authorization checks
- strict input validation
- context-sensitive output encoding/sanitization

SQL Injection

XPath Injection

OS Command Injection

XML External Entitiy (XXE)

Authentication Automation Attacks

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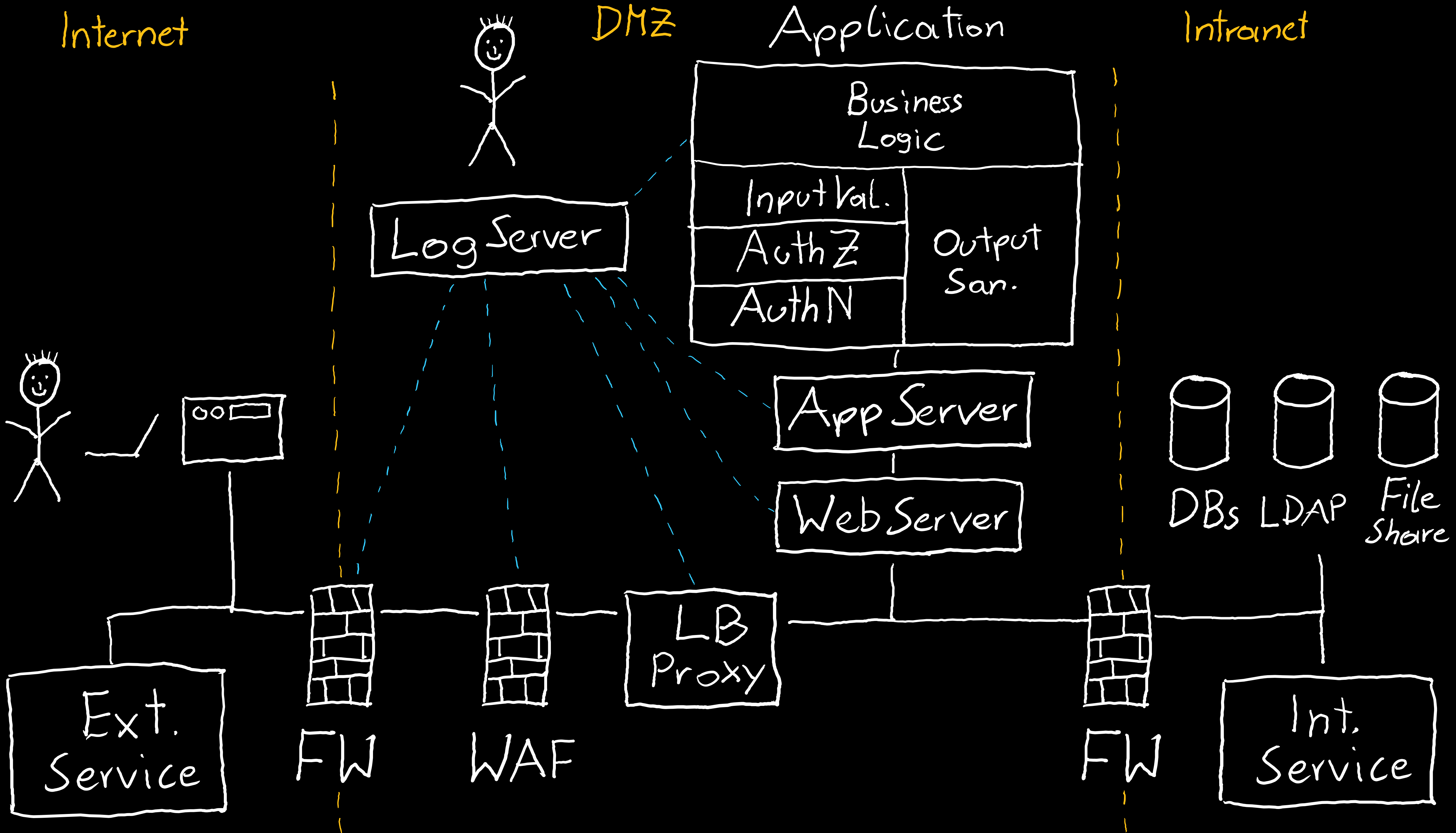
Most important security techniques

Most vulnerabilities can be avoided by a combination of

- strong authentication and session management
- consistent authorization checks
- strict input validation
- context-sensitive output encoding/sanitization
- constant TLS usage

SQL Injection	**Client-side Manipulation (of cookies)**
XPath Injection	**Forceful Browsing**
OS Command Injection	**Insec. Direct Object References**
XML External Entitiy (XXE)	**Path Traversal**
Authentication Automation Attacks	**TOCTOU (Race Condition)**
Session Hijacking	**Cross-Site Scripting (XSS)**
Session Fixation	**Insecure Deserialization**
Information Disclosure	Vulnerabilities in 3rd Party Components
Plaintext Transmission	Insufficient Logging and Monitoring
Insecure Password Storage	**DNS Hijacking**
Passwords in Source Code	CSRF
Insecure File Upload	**Unverified/Open Redirects/Forwards**
Clickjacking	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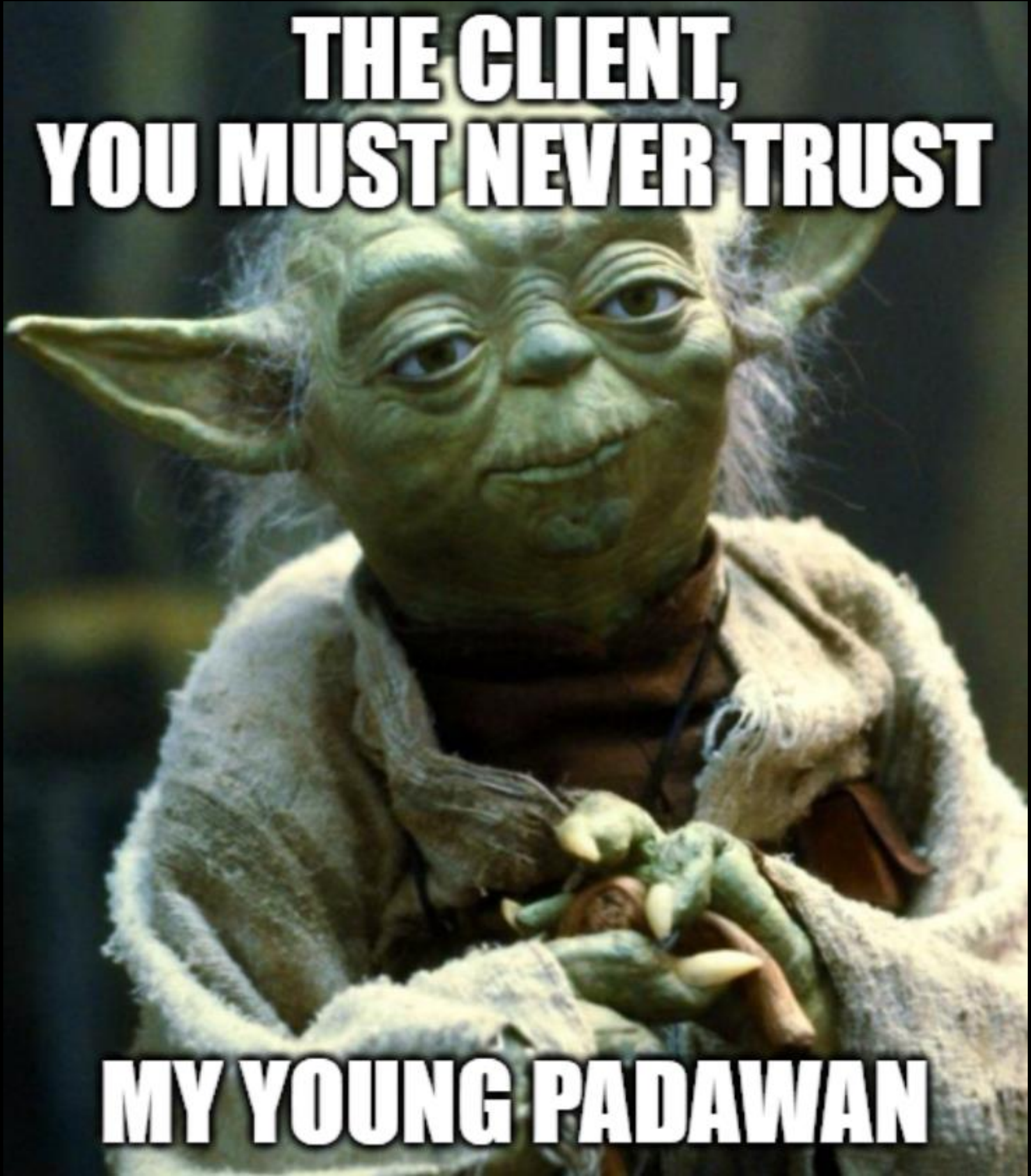
THE CLIENT,
YOU MUST NEVER TRUST
MY YOUNG PADAWAN