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CMMC 1.0 Level 3 Review

February 20, 2020

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Cybersecurity Maturity Model Certification 1.0 Level 3 Review

February 20, 2020

Agenda

- Introductions
- CMMC Schedule
- CMMC 1.0 and Level 3 Overview
- The Big 20!
- Potential Technical Solutions
- Cost and Project Considerations
- Q&A

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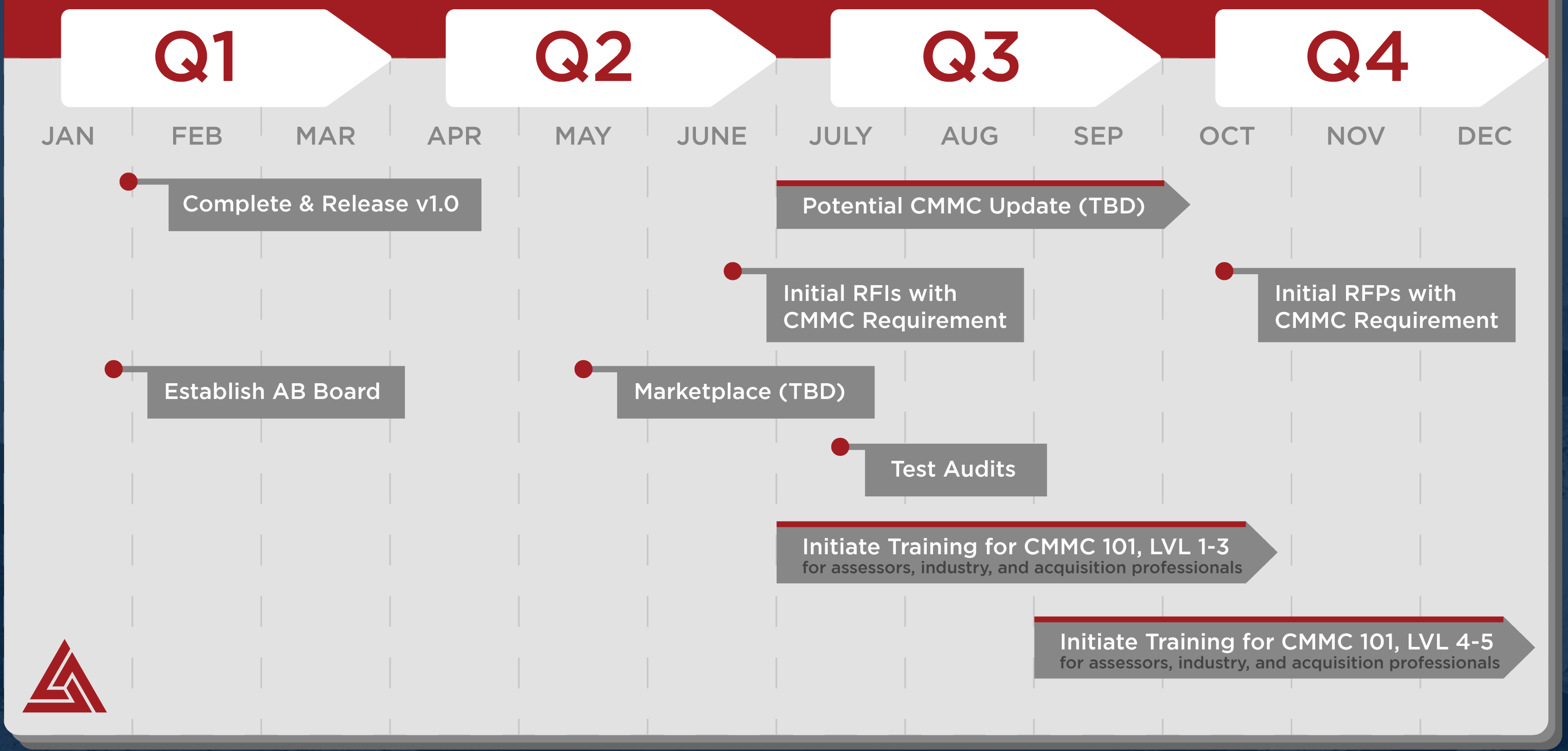
2020 CMMC SCHEDULE



Q1 Q2 Q3 Q4

JAN FEB MAR APR MAY JUNE JULY AUG SEP OCT NOV DEC

Complete & Release v1.0

Potential CMMC Update (TBD)

Initial RFIs with CMMC Requirement

Initial RFPs with CMMC Requirement

Establish AB Board

Marketplace (TBD)

Test Audits

Initiate Training for CMMC 101, LVL 1-3
for assessors, industry, and acquisition professionals

Initiate Training for CMMC 101, LVL 4-5
for assessors, industry, and acquisition professionals

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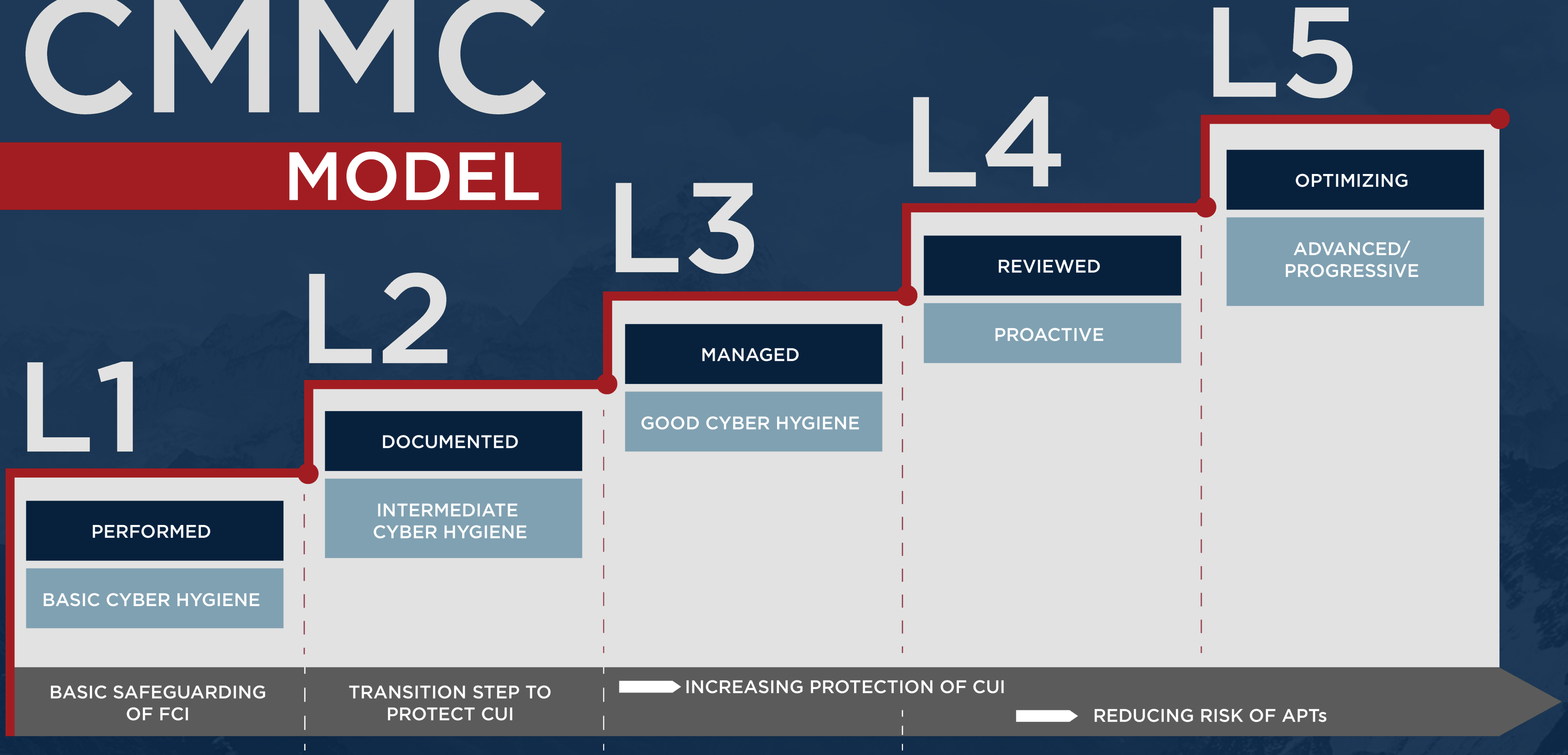
CMMC Overview

CMMC MODEL



L1

PERFORMED

BASIC CYBER HYGIENE

L2

DOCUMENTED

INTERMEDIATE CYBER HYGIENE

L3

MANAGED

GOOD CYBER HYGIENE

L4

REVIEWED

PROACTIVE

L5

OPTIMIZING

ADVANCED/ PROGRESSIVE

BASIC SAFEGUARDING OF FCI

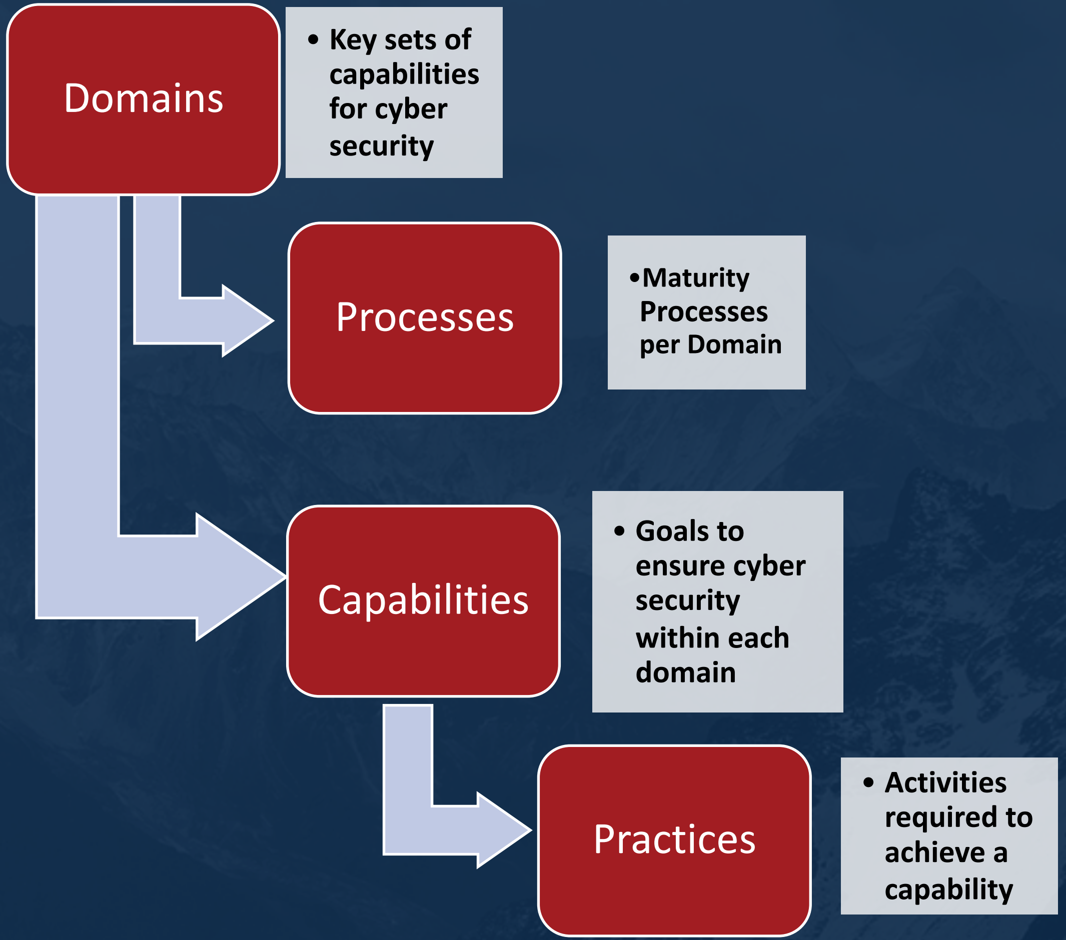
TRANSITION STEP TO PROTECT CUI

INCREASING PROTECTION OF CUI

REDUCING RISK OF APTs

CMMC Model Framework

- 17 Domains consisting of Capabilities
- Capabilities include multiple Practices and Processes, each assigned to a specific Level 1-5
- Capabilities Numbered C001 – C043
- Practice Numbering Methodology
  - XX.#.***
  - XX = 2 Letter Domain (AC = Access Control)
  - # = CMMC Level
  - *** = Practice Number
  - AC.1.001 = "Limit Information system access…"



Domains

- Key sets of capabilities for cyber security

Processes

- Maturity Processes per Domain

Capabilities

- Goals to ensure cyber security within each domain

Practices

- Activities required to achieve a capability

CMMC Practices

Level 1	• 17 Practices
Level 2	• 55 Practices
Level 3	• 58 Practices
Level 4	• 26 Practices
Level 5	• 15 Practices

- Level 1 – 3 Includes 130 Practices and are targeted at the largest and most active component of the DIB
- Level 4-5 Includes 41 additional Practices and are targeted toward a small subset of the DIB supporting critical programs

CMMC Processes

Level 1	• 0 Processes
Level 2	• 34 Processes
Level 3	• 17 Processes
Level 4	• 17 Processes
Level 5	• 17 Processes

Follow the pattern of

Level 2

- Establish a policy that includes [DOMAIN]
- Document the CMMC practices to implement [DOMAIN] Policy

Level 3

- Establish, maintain and resource a plan that includes [DOMAIN]

Level 4

- Review and measure [DOMAIN] activities for effectiveness

Level 5

- Standardize and optimize a documented approach for [DOMAIN] across all applicable organizational units

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CMMC Source Material

- NIST 800-171r1
- FAR Clause 52.204
- DRAFT SP 800-171B
- CIS Controls v7.1
- NIST Cybersecurity Framework 1.1
- CERT Resilience Management Model 1.2
- NIST SP 800-53 Rev 4
- AU ACSC Essential Eight
- UK NCSC Cyber Essentials
- CMMC Working Group
- **Dropped ISO 27001**

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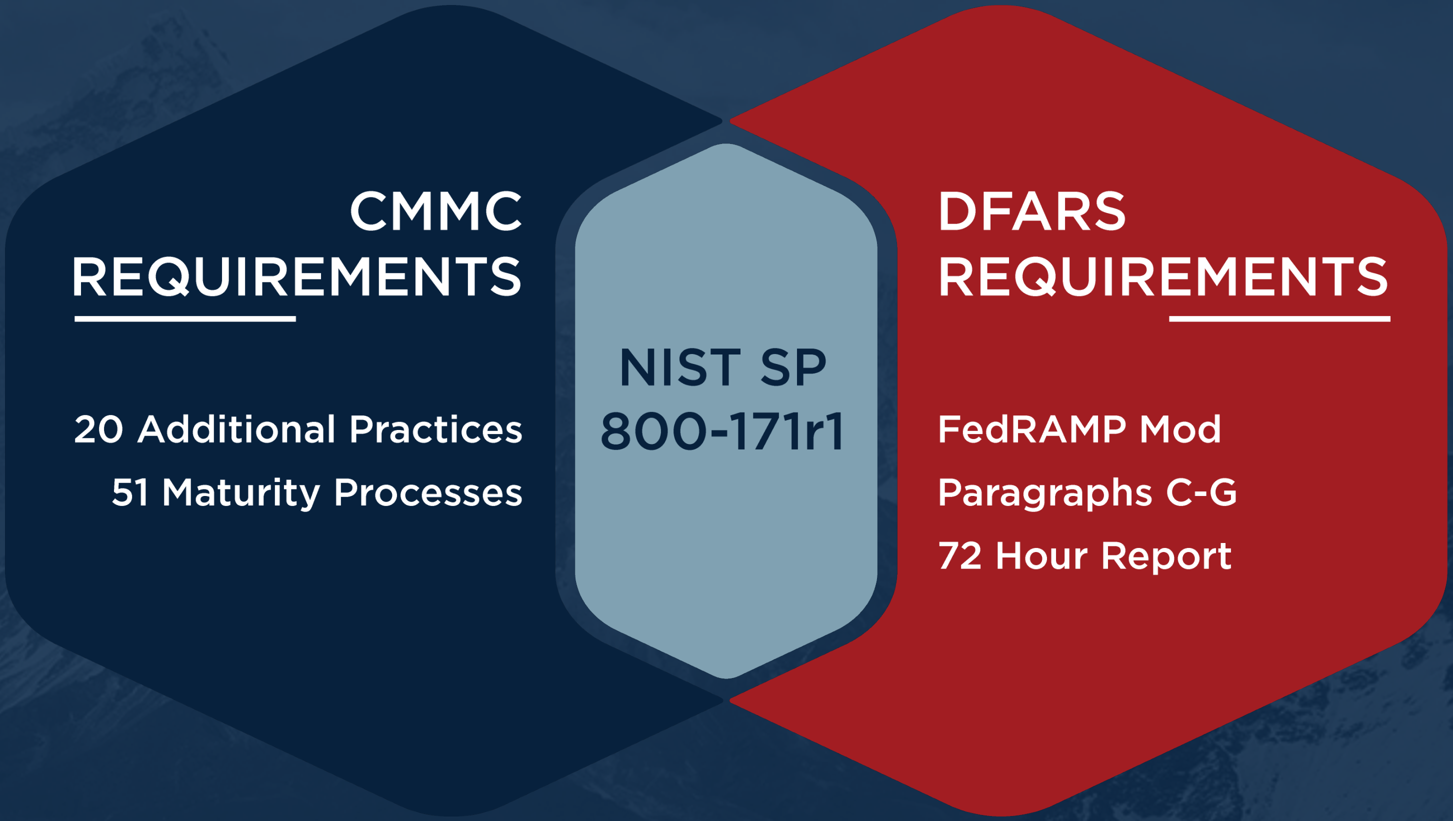
How Do DFARS and CMMC L3 Overlap?

- RFI / RFP Stage
  - CMMC Level Identified in the RFI/RFP
- Contract Award
  - Must have a successful C3PAO CMMC Audit
  - DFARS Requirements Identified in Contract
  - Must Agree to Abide by DFARS 252.204-7012 Requirements in the Representations and Certifications
- Don’t forget about DFARS 252.204-7012
  - DCMA Audits are coming!



CMMC REQUIREMENTS

20 Additional Practices

51 Maturity Processes

NIST SP 800-171r1

DFARS REQUIREMENTS

FedRAMP Mod

Paragraphs C-G

72 Hour Report

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What kind of failures do we see?

- NIST Technical Controls
  - Lack of Multifactor Authentication to the Desktop
  - No Server or Desktop Baseline Configurations
  - No Centralized Audit Logging and Retention
  - Users with Administrative Access
  - No Application Blacklisting / Whitelisting
  - Separation of Duties and Least Privilege

- DFARS Requirements
  - No Medium Assurance Certificate / Token
  - Leveraging Non FedRAMP Cloud Solutions
  - Leveraging Cloud Solutions that don’t meet 252.204-7012 Paragraphs C-G

- NIST Procedural Controls and Documentation
  - No Change Management or Change Logs
  - CUI Data Flow Diagrams
  - Risk Management / Mitigation Plans
  - Incident Response Plan and Testing

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What will it take to get CMMC Certified?

- Level 1:
  - 17 NIST 800-171 Requirements
- Level 2:
  - 72 Practices (65 NIST 800-171 Requirements PLUS 7 Other Practices)
  - 34 Maturity Processes
- Level 3:
  - 130 Practices (110 NIST 800-171 Requirements PLUS **20 Other Practices**)
  - 51 Maturity Processes
- Level 4:
  - 156 Practices (110 NIST 800-171 Requirements PLUS 46 Additional Practices)
  - 68 Maturity Processes
- Level 5:
  - 171 Practices (110 NIST 800-171 Requirements PLUS 61 Additional Practices)
  - 85 Maturity Processes
- System Security Plans and POA&Ms are still required
  - POA&Ms will not be honored for 3rd Party Audits
  - Must fully meet all Level 3 requirements at the time of the Audit

- DFARS and CMMC L3 Certification Process
  - Leverage only FedRAMP Moderate + Cloud Solutions
  - Ensure you can meet Paragraphs C-G
  - Build to NIST 800-171 Standards
  - Implement 20 Additional CMMC Practices
  - Build NIST and the 51 Maturity Processes
  - Ensure SSP is up to date
  - Schedule with C3PAO for Audit
- New Technical Solutions / Requirements
  - Security Information & Event Management (SIEM) Solution
  - Backup / Restore Solution
  - DNS Filtering
  - Isolate Unsupported Platforms
  - Secure Management Protocols
  - SPAM / Email Protections

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CMMC Notes

- Certification will not be required for existing Contracts
- Company must have a "CMMC 3rd Party Assessment Organization" (C3PAO) certification prior to contract award.
- Certifications will be good for 3 Years
- Expectation of 10 Contracts with 150 total companies per contract in 2020. Total of 1,500 Companies
- Focus contracts will include Nuclear, Missile Defense, OTAs, SBIRs and STRs.
  - SOCOM is providing $6,500 in Technical and Business Assistance (TABA) funding toward CMMC Level 1 as part of their Phase 1 SBIR
- Small Businesses should look to the PTACs for potential assistance
- Phased rollout of CMMC into Contracts through 2025. All new contracts in 2026 will have CMMC requirements.
- The CMMC Working Group / Accreditation Board may begin making modifications to the CMMC Practices and Processes as soon as Fall 2020.
- DFARS 252.204-7012 Changes are coming later in 2020.
- DODI 5000 series changes are coming in 2020

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The Big 20!

Microsoft

The Big 20!

10 Technical and 10 Procedural Practices to Implement to get to Level 3

1. AM.3.036: Define procedures for the handling of CUI data
2. AU.2.044: Review Audit Logs
3. AU.3.048: Collect audit information (e.g., logs) into one or more central repositories
4. IR.2.093: Detect and Report Events
5. IR.2.094: Analyze and triage events to support event resolutions and incident declaration
6. IR.2.096: Develop and Implement responses to declared incidents according to predefined procedures
7. IR.2.097: Perform root cause analysis on incidents to determine underlying causes
8. RE.2.137: Regularly perform and test data backups
9. RE.3.139: Regularly perform complete and comprehensive and resilient data backups as organizationally defined
10. RM.3.144: Periodically perform risk assessments to identify and prioritize risks according to the defined risk categories, risk sources and risk measurement criteria.

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The Big 20!

10 Technical and 10 Procedural Practices to Implement to get to Level 3

11. RM.3.146: Develop and implement risk mitigation plans
12. RM.3.147: Manage non-vendor supported products (e.g. end of life) separately and restrict as necessary to reduce risk.
13. CA.3.162: Employ a security assessment of enterprise software that has been developed internally, for internal use, and that has been organizationally defined as an area of risk. (MODIFIED)
14. SA.3.169: Receive and respond to cyber threat intelligence from information sharing forums and sources and communicate to stakeholders.
15. SC.2.179: Use encrypted sessions for the management of network devices
16. SC.3.192: Implement DNS filtering services
17. SC.3.193: Implement a policy restricting the publication of CUI on publicly accessible websites (e.g. Forums, LinkedIn, Facebook, etc.)
18. SI.3.218: Employ spam protection mechanisms at information system access entry and exit
19. SI.3.219: Implement email forgery protections (ADDED)
20. SI.3.220: Utilize email sandboxing to detect or block potentially malicious email attachments

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Asset Management /Audit and Accountability

AM.3.036: Define procedures for the handling of CUI data

- Procedural Requirement
- Accounts for Digital and Physical CUI
- Include guidance on receiving, transmitting, storing and destroying CUI

AU.2.044: Review Audit Logs

- Procedural Requirement / Technical Enhancement
- Level of Review may be determined by a Risk Assessment

AU.3.048: Collect audit information (e.g., logs) into one or more central repositories

- Technical Requirement
- Implement a Security Information and Event Management Solution.
- Preferably a single Repository

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Incident Response

IR.2.093: Detect and Report Events

- Procedural Requirement / Technical Enhancement
- Individuals Can Detect Breakdowns and Report Events
- Monitor Automated Alerts / Alarms
- Leverage the SIEM capability

IR.2.094: Analyze and triage events to support event resolutions and incident declaration

- Technical Requirement
- Evaluate if events are related
- Determine if an event should be escalated
- Determine if you should declare an incident
- Leverage the SIEM capability

IR.2.096: Develop and Implement responses to declared incidents according to predefined procedures

- Procedural Requirement
- Write an Incident Response Procedure
  - Contain Damage
  - Communicate to Users / Stakeholders
  - Implement Controls

IR.2.097: Perform root cause analysis on incidents to determine underlying causes

- Procedural Requirement
- Develop a Root Cause Analysis on each Incident
- Determine the Administrative, Technical and Physical Control Weaknesses
- Capture Lessons Learned
- Initiate Improvements to avoid future incidents

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Recovery

RE.2.137: Regularly perform and test data backups

- Technical Requirement
- Determine Backup Requirements
- Develop Backup Solution for All System and Data Storage Locations
- Execute Backups to Controlled Locations
- Test Backups on a Regular Basis

RE.3.139: Regularly perform complete and comprehensive and resilient data backups as organizationally defined

- Technical Requirement
- Define Organizational Requirements
- Develop Resilient Infrastructure to protect against physical disaster or malicious attack
- Comprehensive backups cover all systems necessary for business effectiveness or continuity
  - Servers / Line of Business Systems
  - Key Workstations / Control Systems
  - Cloud / Collaboration Systems (Office 365)

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Risk Management

RM.3.144: Periodically perform risk assessments to identify and prioritize risks according to the defined risk categories, risk sources and risk measurement criteria.

- Procedural / Documentation Requirement
- Extension of RM.2.141
- Define a Risk Assessment Schedule
- Ensure the following are included
  - Risk Categories (Threats)
  - Sources of Risk
  - Risk Measurement Criteria
- Includes Quantitative and Qualitative Data

RM.3.146: Develop and implement risk mitigation plans

- Procedural / Documentation Requirement
- Define a Mitigation Plan for each Risk
  - Reduce the threat
  - Limit exposure / Identify controls
  - Staff and Resource the plan
  - How to Execute the Plan
  - Measure the Results
- Possible Risk Dispositions include
  - Avoid / Accept
  - Monitor / Defer
  - Transfer / Mitigate

RM.3.147: Manage non-vendor supported products (e.g. end of life) separately and restrict as necessary to reduce risk.

- Technical Requirement
- Determine Risk Exposure
- Leverage Extended Support if possible
- Isolate unsupported products within your environment
- Upgrade / Replace / Retirement

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Security Assessment / Situational Awareness

CA.3.162: Employ a security assessment of enterprise software that has been developed internally, for internal use, and that has been organizationally defined as an area of risk.

- Procedural / Technical Requirement
- New Practice / Replaced Code Reviews
- May do Manual Code Reviews against Secure Development Guidelines
  - Use a separate development team
- May Leverage Static or Dynamic Testing Tools
- Do not allow the code on the network until the review and mitigations are complete

SA.3.169: Receive and respond to cyber threat intelligence from information sharing forums and sources and communicate to stakeholders.

- Procedural / Technical Requirement
- Ensure the Organization is receiving Threat Information from high quality sources
- Subscribe to information feeds from organizations like
  - US-CERT
  - ISACA
  - ICS-CERT
  - Industry Associations / Vendors
  - DoD
  - Infragard
- Ensure information is reviewed and briefed to stakeholders within the organization

System and Communication Protection

SC.2.179: Use encrypted sessions for the management of network devices

- Technical Requirement
- Only use encrypted sessions when Managing Network Devices
- Secure Shell (SSH), HTTPS or TLS are preferred.
- Encrypted VPNs may also be an option.
- Do not use unencrypted protocols such as Telnet, HTTP, SNMPv1 or 2, Cisco SMI

SC.3.192: Implement DNS filtering services

- Technical Requirement
- Prevents access to known malicious websites
- Prevents users from receiving IPs for blocked domains.
- Options May include:
  - DNS Policies on Windows Server / Linux Server
  - OpenDNS
  - Cloud services (Check for Compliance)
  - Hardware based Devices

SC.3.193: Implement a policy restricting the publication of CUI on publicly accessible websites (e.g. Forums, LinkedIn, Facebook, etc.)

- Procedural Requirement
- Establish a policy that restricts individuals from posting CUI on websites and social media
- Review Policy regularly
- Include this information in your annual security training

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System and Information Integrity

SI.3.218: Employ spam protection mechanisms at information system access entry and exit

- Technical Requirement
- Implement on both inbound and outbound email
- Helps protect against SPAM, Phishing, Viruses and Malware
- Options May include
  - Hardware based Devices
  - Cloud Services (check for compliance)
  - Server based SPAM Filters
- Individual User Managed Quarantines would be an usability enhancement

SI.3.219: Implement email forgery protections (ADDED)

- Technical Requirement
- Protects the environment against Phishing and other email based threats
- Always implement email protections on your deliverable domains. These solutions may include:
  - Sender Policy Framework (SPF Records)
  - Domain Keys Identified Mail (DKIM)
  - Domain-based Message Authentication, Reporting & Conformance (DMARC)

SI.3.220: Utilize email sandboxing to detect or block potentially malicious email attachments

- Technical Requirement
- Establish a sandbox / solution that isolates the execution of attached files or linked URLs
- Protects end user devices and networks from viruses and malware.
- Options May include
  - Hardware based Devices
  - Cloud Services (check for compliance)
  - Server based Solutions

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Potential Technical Solution Sets

Security Information and Event Management

Coverage for AU.2.044 / AU.3.048 / IR.2.093 / IR.2.094

- SIEM Solutions (SaaS Solutions Not Vetted for FedRAMP or US Persons)
  - LogRhythm
  - LogVault
  - AlienVault
  - Splunk
  - Others

- Summit 7's Preferred Solution
  - Azure Government Sentinel

Backup and Restore

Coverage for RE.2.137 / RE.3.139

- Backup for On Premises and IaaS
  - Dozens of Vendors and Solutions

- Backup for Office 365 GCC High
  - Veeam Backup and Replication
  - AvePoint Office 365 Backup

- Summit 7's Preferred Solutions
  - On Premises and Azure Backup to Azure Government
  - AvePoint Office 365 Backup to Azure Government

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DNS Filtering

Coverage for SC.3.192

- Potential Solutions (SaaS not vetted for FedRAMP Moderate or US Persons)
  - Webroot
  - Cisco Umbrella (formerly OpenDNS)
  - TitanHQ
  - PaloAlto DNS Security Service
  - ForcePoint

- Summit 7's Preferred Solution

Evaluation In Progress

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SPAM and Email Protections

Coverage for SI.3.218 / SI.3.219 / SI.3.220

- Potential Solutions (Not vetted for FedRAMP Moderate or US Persons)
  - Cisco Email Security
  - Proofpoint Email Protection
  - Barracuda Spam Firewall
  - FireEye Email Security

- Summit 7's Preferred Solution

Office 365 GCC High Exchange Online P2 / E3 and Advanced Threat Protection Plan 1

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What is this going to cost me?!

- What is your current level of readiness?
- Have you (truly) built to NIST 800-171 Already?
- Are you going to build On Premises, Cloud Only or Hybrid Cloud?
- What are the types of costs I may incur?
  - Internal Personnel Costs
    - Initial
    - Perpetual
  - On Premises Hardware / Software
  - Cloud Services
  - 3rd Party Consulting Services
    - Technical Planning and Implementation
    - Procedural Planning and Implementation
  - Managed Services (Desktop / Server / Cloud Management)
  - Managed Security Services (IR / Monitoring / Penetration Testing)

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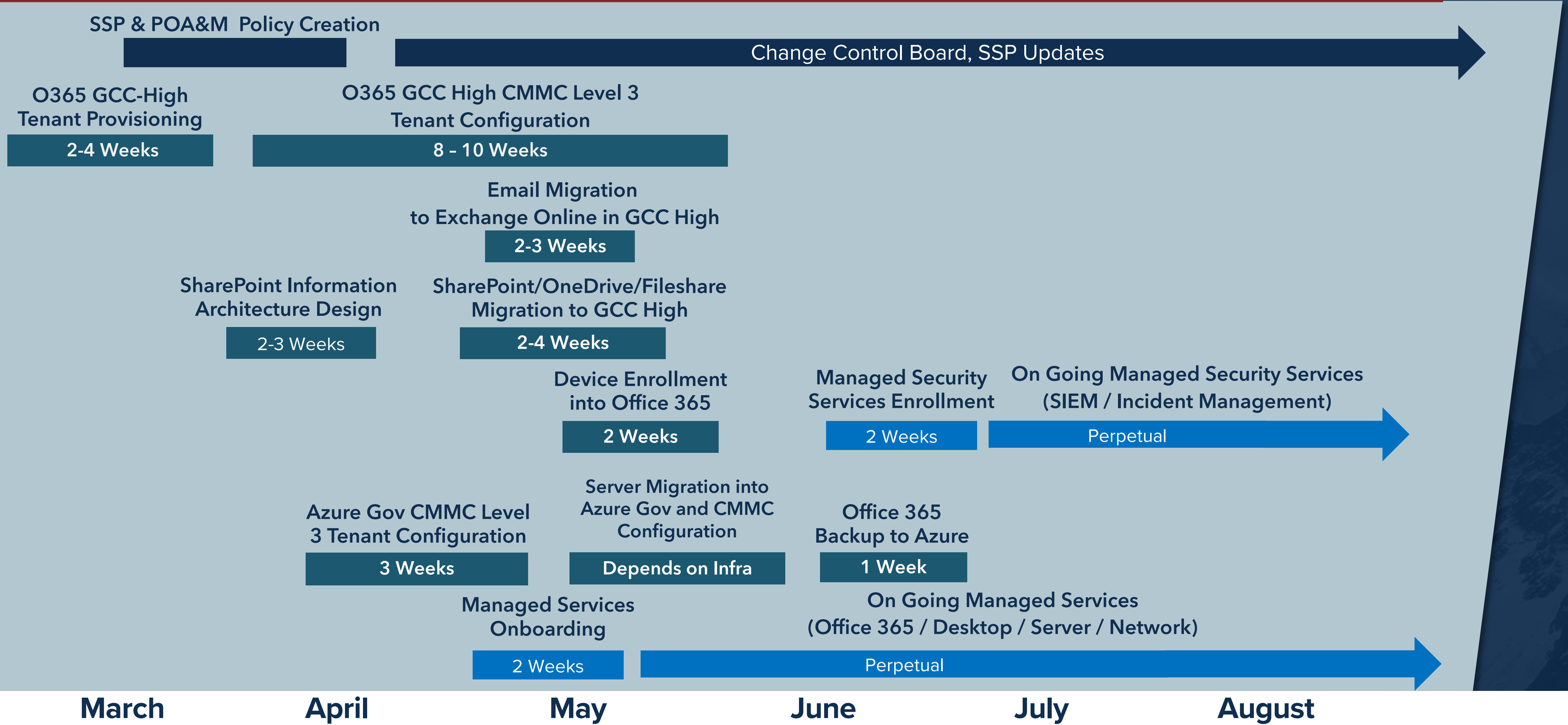
Notional Office 365 / Azure Project Roadmap



SSP & POA&M Policy Creation

Change Control Board, SSP Updates

O365 GCC-High Tenant Provisioning

2-4 Weeks

O365 GCC High CMMC Level 3 Tenant Configuration

8 - 10 Weeks

Email Migration to Exchange Online in GCC High

2-3 Weeks

SharePoint Information Architecture Design

2-3 Weeks

SharePoint/OneDrive/Fileshare Migration to GCC High

2-4 Weeks

Device Enrollment into Office 365

2 Weeks

Managed Security Services Enrollment

2 Weeks

On Going Managed Security Services (SIEM / Incident Management)

Perpetual

Azure Gov CMMC Level 3 Tenant Configuration

3 Weeks

Server Migration into Azure Gov and CMMC Configuration

Depends on Infra

Office 365 Backup to Azure

1 Week

Managed Services Onboarding

2 Weeks

On Going Managed Services (Office 365 / Desktop / Server / Network)

Perpetual

March April May June July August

Resources

Blogs: http://cmmc.blog

Videos: http://cmmc.video

Inquiries: cmmc@summit7systems.com