

#### Innovations in Testing 2022 In-Person & Virtual

## Select Your Own Certification Path A Case Study of Program Design (Part 2)





#### Heidi Schreifels

- F5 Certification Program Manager Jill R. van den Heuvel, Ph.D.
- Alpine Testing Solutions, Manager, Psychometric and Data Operations | Senior Psychometrician

#### Ken Salchow, DBA

• F5 Director of Digital Education Team











### >> What is Program Design



#### An outline of, or framework for:

- » A credentialing program
- » How different exams/roles within a content area are related
- » How different content area tracks are related
- » The stakeholders for each area and why the credential is important to each





>>> What are the Benefits?



- Defines a road-map for the program
  - » Helps to avoid mis-steps along the way
- Helps to ensure that overlap and/or omissions are intentional
- Allows for a clear direction for the program AND each exam
  - Helps to provide structure in an ever-changing resource landscape (staff, technology, products, etc.)
- Shows candidates how they may progress through the program
  - » Including information about training and hands-on experiences





### >>> What do we do?



#### Intentional activities define:

- » Purposes and goals for the program
- » Stakeholders and the program's value for each stakeholder group
- » Tracks, Levels, and Credentials
  - > Relationship(s) across/between credentials/tracks
- » Policies: pre-requisites, credential maintenance/expiration, re-take, security, etc.
- » Continuous improvement strategies
- Include appropriate participants





### >>> Why do we care?



#### Add value for **EVERYONE**

- » Candidates
- » Employers
- » Program Sponsors

# Without value the program is unlikely to succeed





### >>> What's next?









#### **Continuous Improvement**







### >>> Historical Perspective



#### **Course List**







### >> The new Agile Reality









### >> Adaptable Learning





**Technology Areas of Competence** 





### >> Building Education





**Role or Solution Areas of Competence** 





### >>> Key Elements



#### Shooting for 80/20:

- » 80% smaller, reusable "chunks";
- » Easier to maintain/deliver.

#### "Capstones":

- » "Connective Tissue";
- » Differentiation at point of implementation;
- » MVP releases.

#### Third-Party Content:

- Add customization and adaptability;
- » Reward expansive knowledge.

#### Cross-Use Components:

- » Learn/Earn multiple paths;
- » "push" to expand knowledge.





### >>> How does it work?



#### Block (Assessment)

- A single assessment component
- 20–30 items on a unified topic
- If a block applies to multiple stacks/paths, the candidate only needs to test on it once

#### • Stack (Certification)

- An F5-defined cluster of blocks compromised of like topics to create a certification
- Path (Cross-Certification)
  - An F5-defined cluster with multiple certifications







#### Program Design

- Global representation was critical
- Four meeting sessions were each held twice to accommodate all time zones
- Participants outlined the desired stacks
- Key was getting buy-in from all stakeholders







- Challenges We Faced During the Process
  - Too reliant on stakeholders who knew too much about Certification
  - Our assumption that we needed "experts"
  - Experts over-helping, leading the discussion







#### Evolution of thoughts (whiteboard style)

| Modern App<br>Delivery: App<br>Delivery: Kubernetes<br>and Microservices,<br>App Sec, Web<br>Performance, API<br>Mgmt Gateway, DNS<br>Services | Traditional App<br>Delivery: App<br>Delivery: App<br>Security, DNS<br>Services, Secure<br>User Access,<br>Automation | Security: SSL<br>Orchestration,<br>DDoS, App<br>Security, DNS<br>Security,<br>Security aaS |   | Fraud Prevention,<br>Bot Detection, Cred<br>Stuffing, Fake<br>Accounts, Credit<br>Application Fraud,<br>Gift Card Cracking,<br>Scraping, App DDoS,<br>Aggregator Threat<br>Surface |   | Automation/Orchestra<br>tion: Central Mgmt,<br>Declarative<br>Configurations,<br>Declarative<br>Onboarding.<br>Application<br>Templates, Telemetry<br>Streaming, Cloud<br>Falover, Control Plane<br>Programability |   | Edge 2.0: Multi Cloud<br>Networking, Secure<br>Kubernetes Cateway.<br>Edge Networking and<br>Security, Infra and<br>App Mgmt, DDoS<br>Mitigation, Web App<br>Sec & Performance.<br>ADN | vigital Transformation<br>Toud/Off-Prem Basics<br>In-Prem Basics<br>Migration Basics<br>Migration Value Prop<br>Migration Strategies<br>Migration Pitfalls<br>Migration Pitfalls<br>Troubleshooting | Tre<br>an<br>De<br>tra<br>do<br>tro<br>En<br>ha<br>pa | oubleshooting<br>d<br>sign/Deployment<br>acks so that SEs<br>on t have to<br>bubleshoot and CS<br>geneers don't<br>we to design to<br>ass their certs. |   | • |
|--|--|--|---|--|---|--|---|--|---|---|--|---|---|
| Platform<br>BIC-IP:<br>TMOS F5OS,<br>Docker,<br>Kubernetes,<br>Hardware  | <br>Platform<br>Multi-Cloud.<br>Voltera, credits from<br>technology partner<br>certs (AWS, Vmware<br>etc)            | <br>Platform<br>NGINX: OS,<br>Unit, Docker,<br>Kubernetes                                  | • | Application<br>Security:<br>WAF, Access,<br>DoS  | • | ldentity and<br>Behavior:<br>Fraud,<br>Anti-Bot, DoS   | • | Network Security<br>(inc. networking): L4<br>Firewall, Load<br>Balancing, DNS  | <br>Service Provider:<br>SG, Control<br>protocols,<br>Subscriber<br>Management, CGAT,<br>SPK/CNF  |   | Management&<br>Orchestration:<br>Scripting, API,<br>Service Mesh,<br>Ingress Control, F5<br>management<br>platforms                                    | 5 |   |







#### • Evolution of thoughts (spreadsheet style)

| Ingress Control                       | Load Balancer                | API Gateway                             | App/Web Server                                  | Platform/Infrastructure                                       | Management/ Automation/<br>Orchestration      |                          | C       |
|---------------------------------------|------------------------------|---|---|---|---|--------------------------|---------|
|                                       |                              |   |   |   |   |                          | In      |
| Platform Infrastructure               | Hardware/On-Prem             | URL based content routing and filtering | Reverse Proxy                                   | Cloud   | Central Mgmt                                  |                          | C       |
| Management/ Automation/ Orchestration | Single Cloud Environment     |   | Content Delivery/Caching                        | Hybrid Cloud  | Declarative Configurations                    |                          | D       |
| URL based content routing             | Hybrid solutions             |   | Microservices on Kubernetes                     | Scaling of Platform (tenants and blades)                      | Declarative Onboarding                        |                          | Ki      |
|                                       | Native as a Service          |   | Building Applications with NGINX Unit (Level 3) | Edge Networking and Security/Volterra                         | Application Templates                         |                          | C       |
|                                       | DNS Services in App Delivery |   |   | Platforms   | Telemetry Streaming                           |                          | S       |
|                                       |                              |   |   | BIG-IP (TMOS<br>F5OS/including mBIP)                          | Cloud Failover                                |                          |         |
|                                       |                              |   |   | NGINX   | Control Plane Programmability                 |                          |         |
|                                       |                              |   |   | Volterra  | Scripting                                     |                          |         |
|                                       |                              |   |   | Hardware  | Scaling of Apps (platform agnos               | tic)                     |         |
| BIG-IP                                | LTM                          | NGINX+                                  | NGINX+  | Viprion   | API   |                          | N       |
| NGINX+                                | VXLAN                        |   | NGINX Unit                                      | General Hardware  | Analytics                                     |                          | A       |
| NGINX Kubernetes Ingress controller   | SDN                          |   |   | VELOS   | Web App Sec & Performance                     |                          |         |
|                                       | ADN/Volterra                 |   |   | Maintenance/ Operations/<br>Tuning                            | Dvnamic Discoverv                             |                          |         |
|                                       | NGINX+                       |   |   | Upgrades  | DevOps/DevSecOps                              |                          |         |
|                                       |                              |   |   | Diagnostics   |   | Intro to DevOps          |         |
|                                       |                              |   |   | iHealth   |   | Continuous Delivery      |         |
|                                       |                              |   |   | Memory management   |   | Security in DevOps (DevS | SecOps) |
|                                       |                              |   |   | Web Performance   |   |                          |         |
|                                       |                              |   |   | (likely needs to be<br>broken down)                           | F5 Products: AS3, DO, FAST,<br>Cloud Failover |                          |         |
|                                       |                              |   |   | Application Resilence (availability zones, regions, clusters) | Products: BIG-IQ, iApps<br>LX/iControl LX     |                          |         |
|                                       |                              |   |   | Scaling of Platform (Public clouds)                           | Product: NGINX Controller and I               | nstance Manager          |         |
|                                       |                              |   |   |   | Infra and App Mgmt - Volterra                 |                          |         |
|                                       |                              |   |   | Products: Cloud Services                                      |   |                          |         |
|                                       |                              |   |   | Product: VoltMesh   |   |                          |         |







#### • Evolution of thoughts (spreadsheet style)

| Ingress Control<br>Platform Infrastructure<br>Management/ Automation/ Orchestration<br>URL based content routing |   | Load Balancer<br>Hardware/On-Prem<br>Single Cloud Environment<br>Hybrid solutions<br>Native as a Service<br>DNS Services in App Delivery | API Gateway URL based content routing and filtering | App/Web Server<br>Reverse Proxy<br>Content Delivery/Caching<br>Microservices on Kubernetes<br>Building Applications with NGINX Unit | Platform/Infrastructure<br>Cloud<br>Hybrid Cloud<br>Scaling of Platform (tenants and blades)<br>Edge Networking and Security/Volterra<br>Memory management<br>Application Resilence (availability zones,<br>regions, clusters)<br>Scaling of Platform (Public clouds)<br>Platforms<br>BIG-IP (TMOS, F5OS, mBIP)<br>NGINX<br>Volterra<br>Hardware<br>Viprion<br>General Hardware<br>VELOS<br>Maintenance/ Operations/ Tuning<br>Upgrades<br>Diagnostics<br>iHealth<br>Web Performance (likely needs to be<br>broken down) |   | Management/ Automation/<br>Orchestration<br>Central Mgmt<br>Declarative Configurations<br>Declarative Onboarding<br>Application Templates<br>Telemetry Streaming<br>Cloud Failover<br>Control Plane Programmability<br>Scripting<br>Scaling of Apps (platform agnostic)<br>API<br>Analytics<br>Web App Sec & Performance<br>Dynamic Discovery<br>DevOps/Dev SecOps<br>Intro to DevOps<br>Continuous Delivery<br>Security in DevOps (DevSecOps) |   | Container Environments<br>Introduction to F5<br>containers<br>Docker<br>Kubernetes<br>Container Networking<br>Service Mesh |
|--|---|--|---|---|--|---|--|---|--|
| Related Products   | 1 | Related Products   | Related Products                                    | Related Products  | Related Products   | 1 | Related Products   | 1 | Related Products   |
| BIG-IP<br>NGINX+<br>NGINX Kubernetes Ingress controller  |   | LTM<br>VXLAN<br>SDN<br>ADN/Volterra<br>NGINX+  | NGINX+  | NGINX+<br>NGINX Unit  | Cloud Services<br>VoltMesh   |   | F5 AS3, F5 DO, F5 FAST, F5 Cloud<br>Failover<br>BIG-IQ, iApps LX/iControl LX<br>NGINX: Controller and Instance<br>Manager<br>Volterra: Infra and App Mgmt  |   | NGINX Service Mesh<br>Aspen Mesh   |





### >> What didn't happen











#### Domain Analysis

- Currently being conducted as virtual meetings with content experts and stakeholders
- Then a blueprint survey will be conducted to gather input from a broader group

#### Item Development

- Targeted SME involvement
- Remote/asynchronous development activities









Technology Areas of Competence





















### Questions







