The Role of DDI in SD-WAN and SASE

N3K Expert Webinar Series

Andreas Taudte
Principal DDI Consultant

Last updated October 2023

Housekeeping

- Timing, Schedule, Q&A Session

- Online Etiquette (microphones, distracting activities)

- Recording and Privacy

Introduction to DDI

DNS

- Crucial for Network Communication
- Translates user-friendly Domain Names into IP Addresses
- Computers and Network Devices use IPs communicate

DHCP

- Simplifies Network Management by automatically Assigning IP Addresses to Devices
- Eliminating the Need for manual Configuration

IPAM

- Helps in avoiding Conflicts
- Ensures that Address Spaces are used efficiently
- Keeps Track of Address Assignments for Auditing and Troubleshooting Purposes

Introduction to SD-WAN

- Software-Defined Wide Area Network (SD-WAN)

- Software-driven Enterprise Network Management

- Uses MPLS, LTE and other Broadband Transports

- Cost-effective WAN Alternative

- Efficient Bandwidth Usage and Integration

- Prioritizes Key Applications and optimizes Bandwidth

Introduction to SASE

- Secure Access Service Edge (SASE)

- Cloud-native Model of Networking and Security in one Service

- Dynamic and secure Access to multiple Locations (cloud, data centres, etc.)

- Unified Management and Visibility for fewer Vulnerabilities

- Consistent Security Policies and real-time Threat Detection

- Centralized Management cuts Costs and Hardware Needs

- Adapts to various Access Scenarios (branches, remote workers, IoT, etc.)

SD-WAN vs. SASE

- **Focus**
  - SD-WAN connects Enterprise Networks over Distances
  - SASE merges Networking and Security in the Cloud

- **Components**
  - SD-WAN is a software-based Wide Area Network
  - SASE is SD-WAN + integrated Security Stack

- **Deployment**
  - SD-WAN covers Services in Branch Offices
  - SASE works cloud-native as a Service

- **Security**
  - SD-WAN often needs Security added
  - SASE has comprehensive and integrated Security

- **User Access**
  - SD-WAN is built for fixed Locations
  - SASE covers any Device anywhere

SD-WAN Challenges & Considerations

- Challenges
  - Ensuring fast, reliable DNS Resolution for remote Users spread across multiple geographical Regions
  - Scaling DHCP Services to accommodate an increasing Number of remote Sites
  - Ensuring the Continuity of DNS/DHCP Services amidst unstable Network Conditions

- Considerations
  - Deploy a DNS Architecture that leverages local DNS Caching or Anycast DNS for faster Response Times
  - Implement High-Availability DHCP Setup for resilient Service Provision
  - Use SD-WAN Solutions that integrate with DDI Solutions
  - Consider Re-architecture the DNS Routing (default to cloud, conditional internally)

DDI Requirements for SD-WAN

- Centralized Management ensures Control over the entire WAN

- Scalability adapts to Network Growth

- DNS Security & Traffic Direction are top Priorities

- DDI Solutions allow for flexible Subnetting and Visibility

- Automated Provisioning & Cloud Compatibility streamline Setups

- Secure Access provides robust Authentication

- API Integration connects with other Management Platforms

- Reporting & Compliance offer Insights and track Actions

SASE Challenges & Considerations

- Challenges
    - Securing DNS Traffic against Cache Poisoning, DDoS Attacks and Data Exfiltration
    - Mitigating Risks of IP Conflicts and maintaining accurate IP Allocation
    - Complexity of managing DNS/DHCP in a distributed Environment

- Considerations
    - Regularly audit DNS Logs for malicious Activities and implement DNSSEC where applicable
    - Look for DDI Solutions that provide centralized Control over distributed Endpoints
    - Consider SASE Providers that offer Integration with DDI Solutions

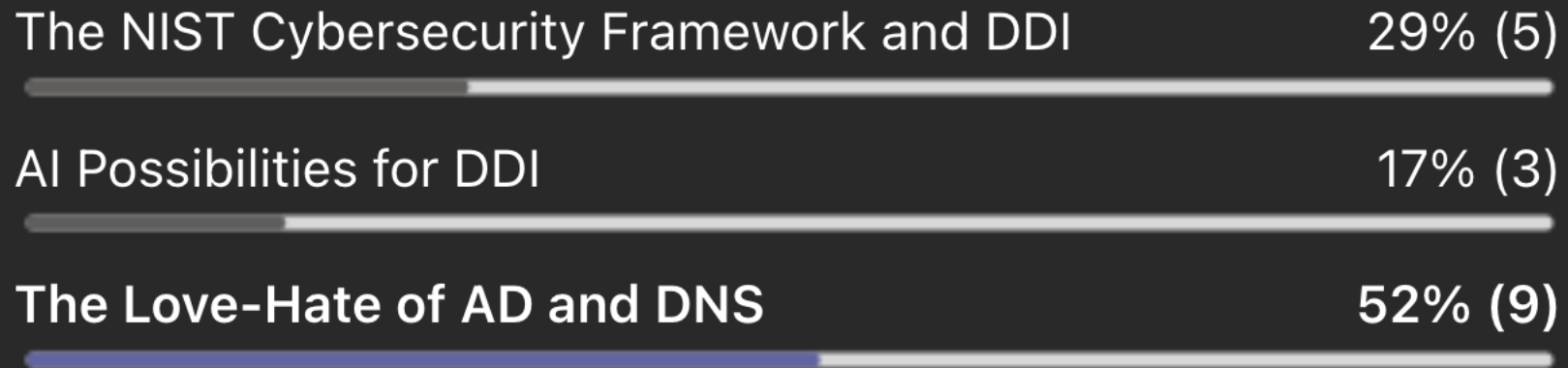# DDI Requirements for SASE

- Track and manage Subnets and IP Address Assignments across WAN, Cloud and Remote

- Identify Users and Devices upon Initialization

- Deploy DNS within the SD-WAN to resolve on-net Applications

- Enable optimal Cloud Application Routing with local DNS

- Deploy DNS in the Cloud to resolve Enterprise Cloud Applications

- Facilitate Edge Security at the DNS Level

- Scanning of DNS Traffic to block Exfiltration

- Promote agile Scaling of Network and Security Services

Call-to-Action

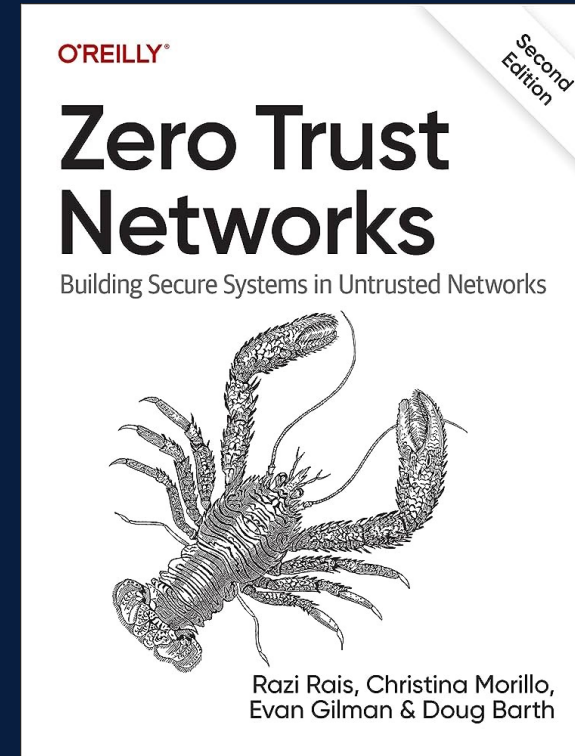- Check current DDI Strategy's Compatibility with SD-WAN & SASE

- Defend against DNS Threats, implement DNSSEC and monitor DNS Logs

- Opt for SD-WAN & SASE with DDI Integrations

- Collaborate for tailored DDI Integration

- Update IT Team on DDI Best Practices

What's next?

The NIST Cybersecurity Framework and DDI   29% (5)

AI Possibilities for DDI   17% (3)

The Love-Hate of AD and DNS   **52% (9)**

17 responses

Greedy for more?

https://www.oreilly.com/library/view/sdn-software-defined/9781449342425/

https://www.oreilly.com/library/view/zero-trust-networks/9781492096580/

Thank you for your Time.

N3K Network Systems
Ferdinand-Braun-Straße 2/1 | 74074 Heilbronn
+49 7131 594 95 0
info@n3k.de