DNSSEC in Windows DNS Server

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Windows DNS Server

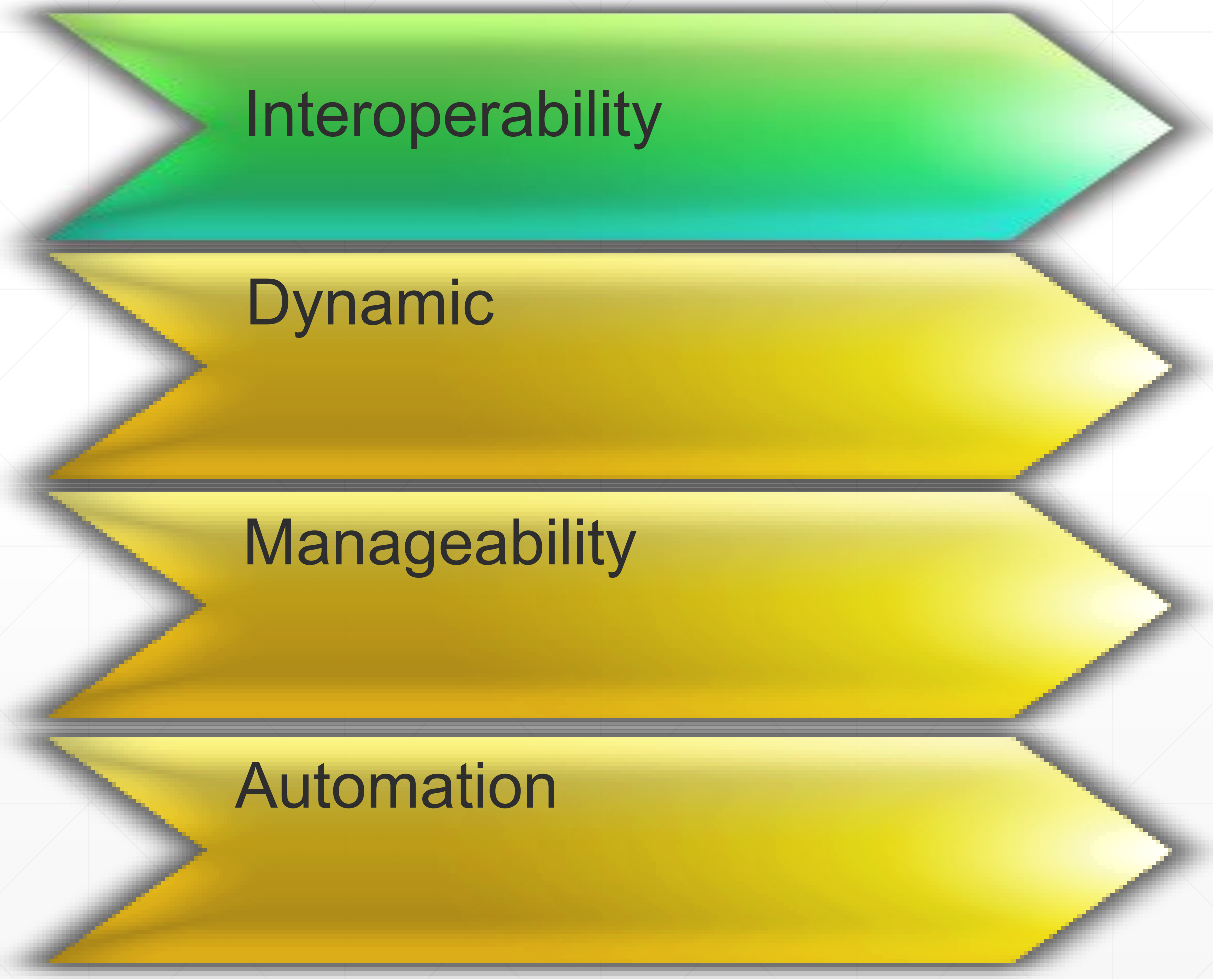
- Widely deployed in enterprises
- Fair presence in the DNS resolver space
- Standards compliant and interoperable
- Secure and scalable

DNSSEC in Windows DNS Server

- Microsoft introduced support for DNSSEC in Windows 2008 R2…
  - Ability to sign zones offline and host signed zones
  - Validation of signed responses
  - Support for NSEC

DNSSEC in Windows DNS Server

ENABLING ENTERPRISE DNSSEC ROLLOUT



Interoperability

Dynamic

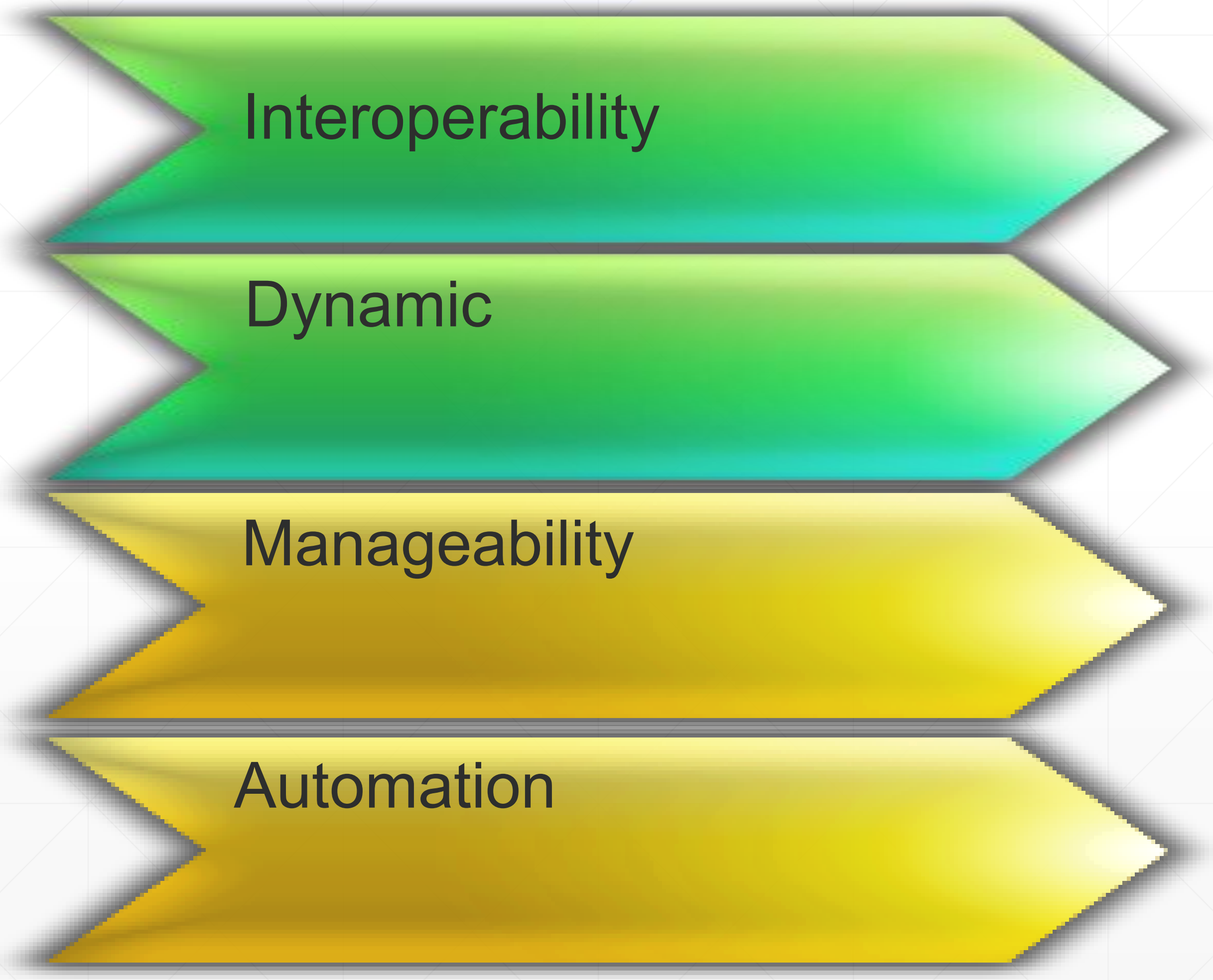
Manageability

Automation

- Latest RFCs
  - NSEC3 Support
  - RSA/SHA-2, ECDSA Signing
  - Automated Trust Anchor rollover
- Support for 3rd Party Key Management

DNSSEC in Windows DNS Server

ENABLING ENTERPRISE DNSSEC ROLLOUT



Interoperability

Dynamic

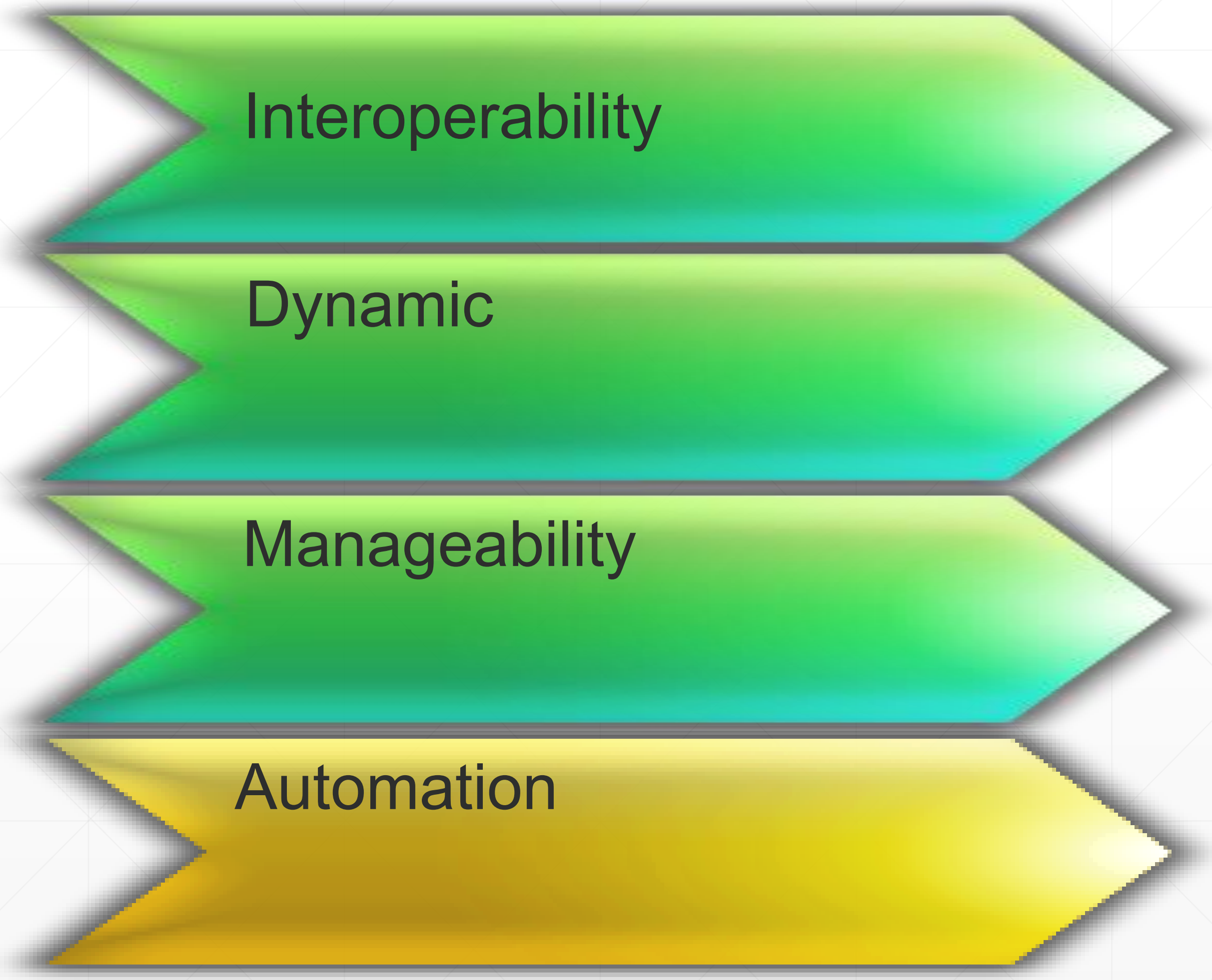
Manageability

Automation

- Support for Online Zone Signing.
  - Sign/unsign/change DNSSEC settings on a live zone
  - Add/remove records dynamically on a signed zone
- Improved DNS/DNSSEC server performance
- Trust Anchor Management
  - Root Trust Anchor Management
  - Managing Zone specific Trust Anchors
  - Signed Delegations
  - RFC 5011 for Automated, authenticated and authorized update of Trust Anchors

DNSSEC in Windows DNS Server

ENABLING ENTERPRISE DNSSEC ROLLOUT

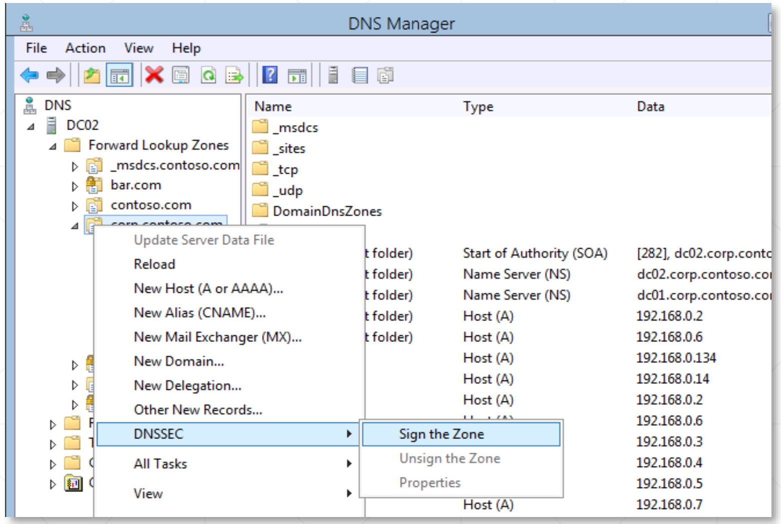


Interoperability

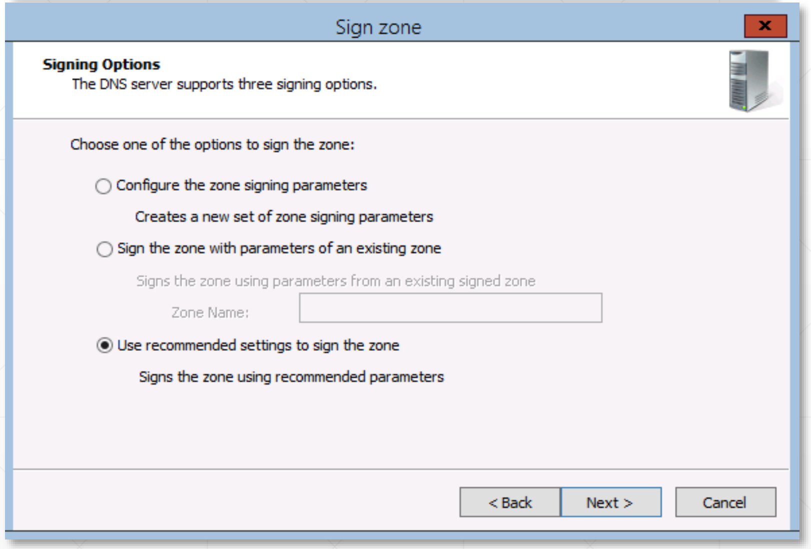
Dynamic

Manageability

Automation



Name	Type	Data
_msdcs		
_sites		
_tcp		
_udp		
DomainDnsZones		
t folder)	Start of Authority (SOA)	[282], dc02.corp.conto
t folder)	Name Server (NS)	dc02.corp.contoso.co
t folder)	Name Server (NS)	dc01.corp.contoso.co
t folder)	Host (A)	192.168.0.2
t folder)	Host (A)	192.168.0.6
	Host (A)	192.168.0.134
	Host (A)	192.168.0.14
	Host (A)	192.168.0.2
		192.168.0.6
		192.168.0.3
		192.168.0.4
		192.168.0.5
	Host (A)	192.168.0.7



Sign zone

Signing Options

The DNS server supports three signing options.

Choose one of the options to sign the zone:

○ Configure the zone signing parameters

Creates a new set of zone signing parameters

○ Sign the zone with parameters of an existing zone

Signs the zone using parameters from an existing signed zone

Zone Name:

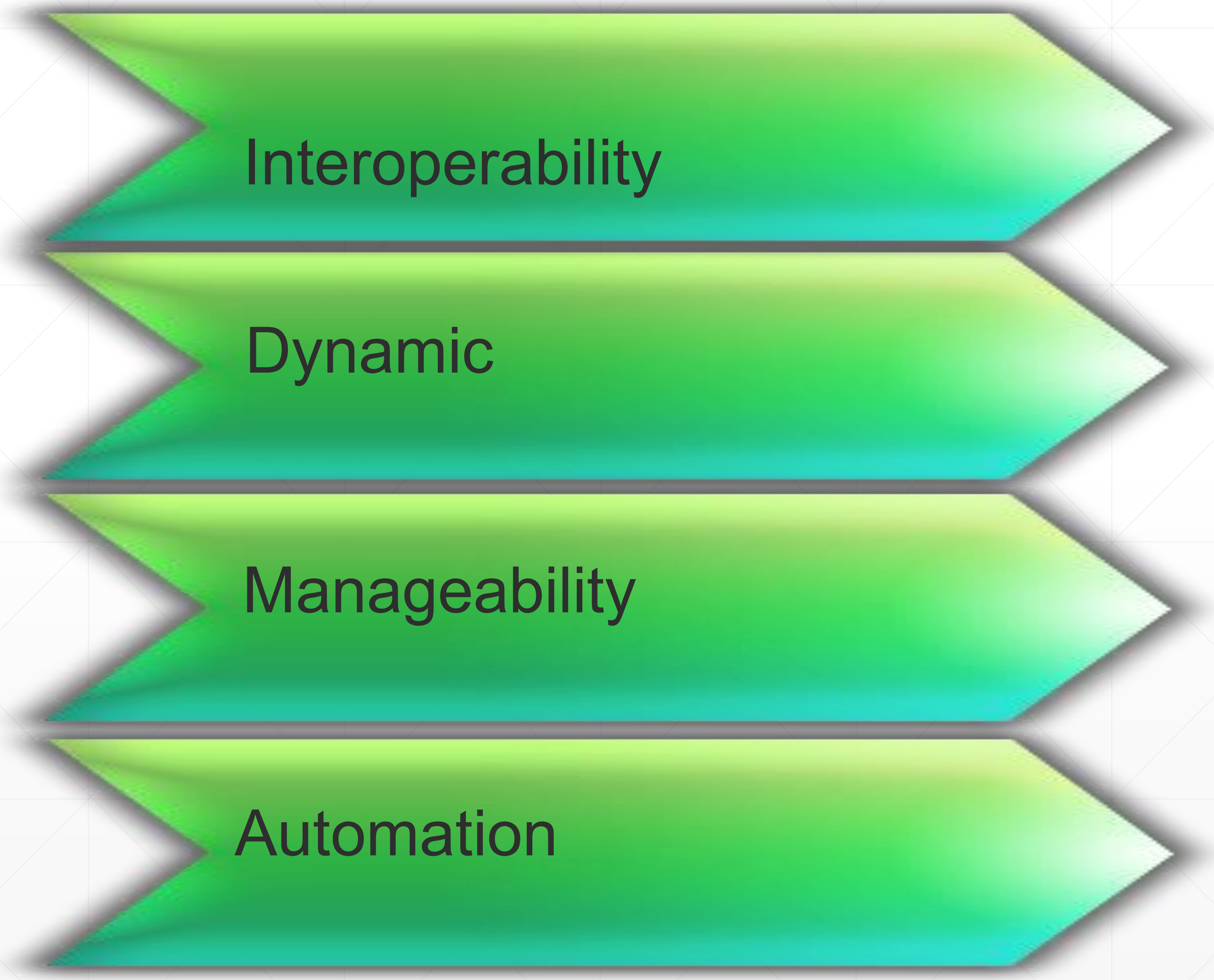
● Use recommended settings to sign the zone

Signs the zone using recommended parameters

Complete Powershell Support

DNSSEC in Windows Server

ENABLING ENTERPRISE DNSSEC ROLLOUT



Interoperability

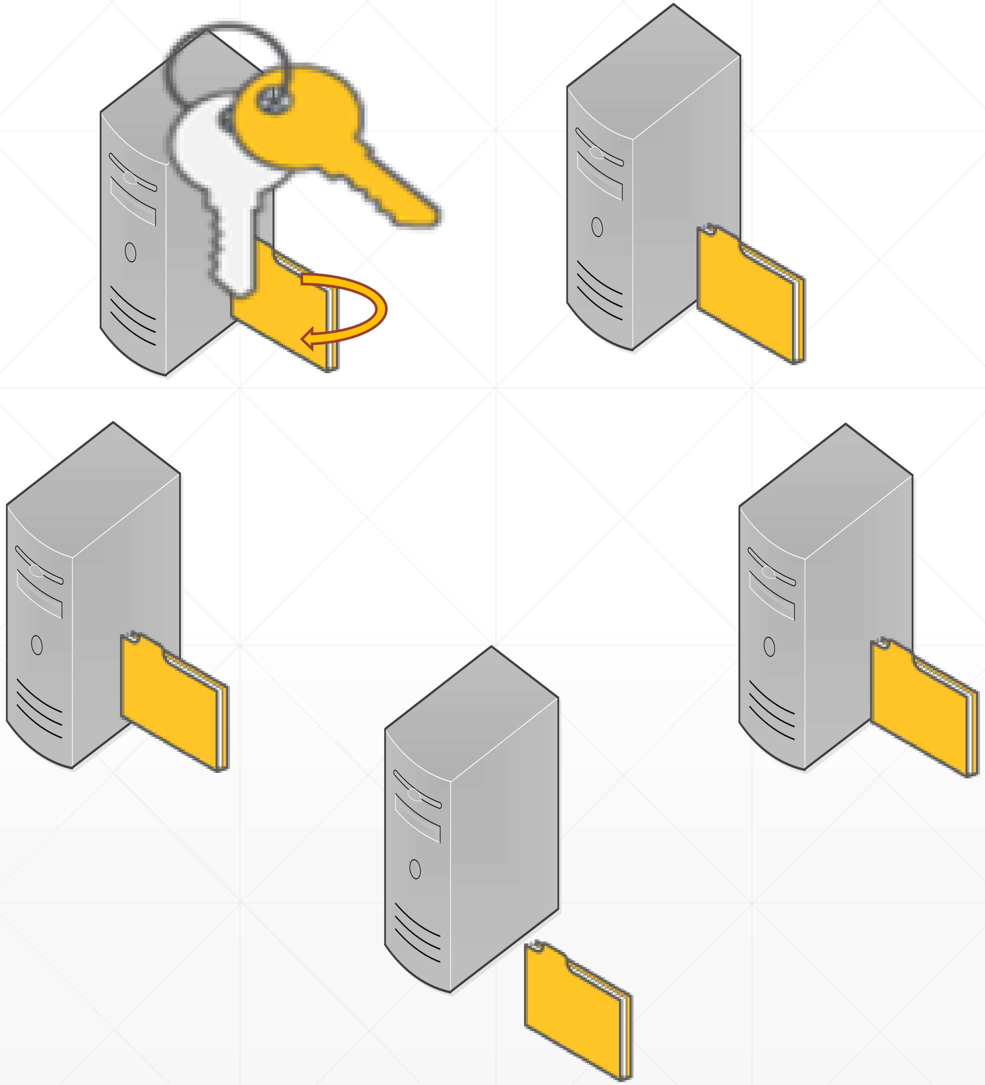
Dynamic

Manageability

Automation

- Automated **re-signing** on static and dynamic updates
- Automated **key rollovers**
- Automated **signature refresh**
- Automated **updating of secure delegations**
- Automated **distribution and updating of Trust Anchors - RFC 5011**

Signing a zone

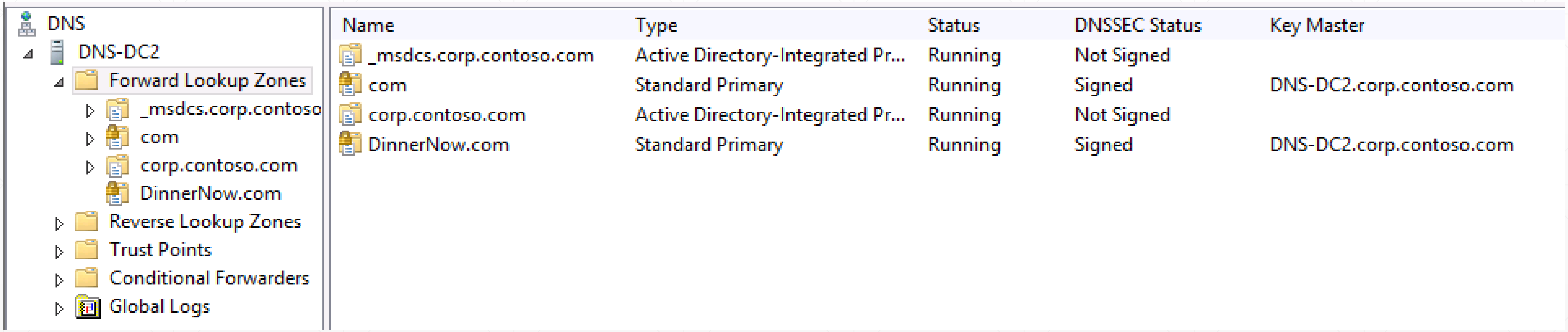


- DNS Manager wizard walks admin through signing process
- Generates Keys for signing zone on the first Server.
  - Support for CNG compliant third party KSPs
- Signs it’s own copy of the zone

Key Master Role

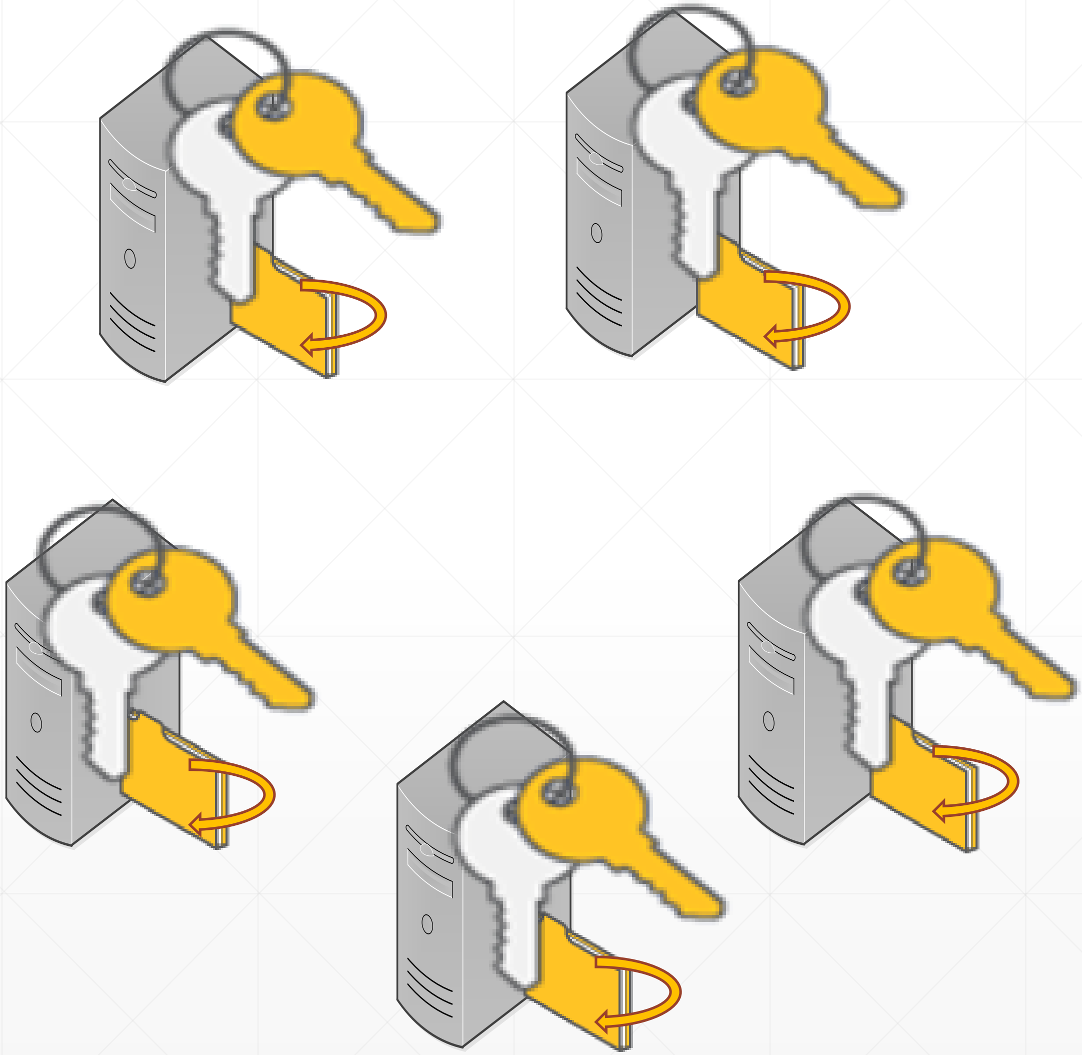
Overview ✓ | DNSSEC | Performance | More…

- Single location for all key generation and management
  - Responsible for automated key rollover
- Administrator designates one server to be the key master
  - First DNSSEC server becomes



Name	Type	Status	DNSSEC Status	Key Master
_msdcs.corp.contoso.com	Active Directory-Integrated Pr...	Running	Not Signed	
com	Standard Primary	Running	Signed	DNS-DC2.corp.contoso.com
corp.contoso.com	Active Directory-Integrated Pr...	Running	Not Signed	
DinnerNow.com	Standard Primary	Running	Signed	DNS-DC2.corp.contoso.com

Signing entire zone



- Private zone signing keys replicate automatically to all DCs hosting the zone through AD replication
- Each zone owner signs its own copy of the zone when it receives the key
  - Only Server 2012+ DCs will sign their copy of the zone

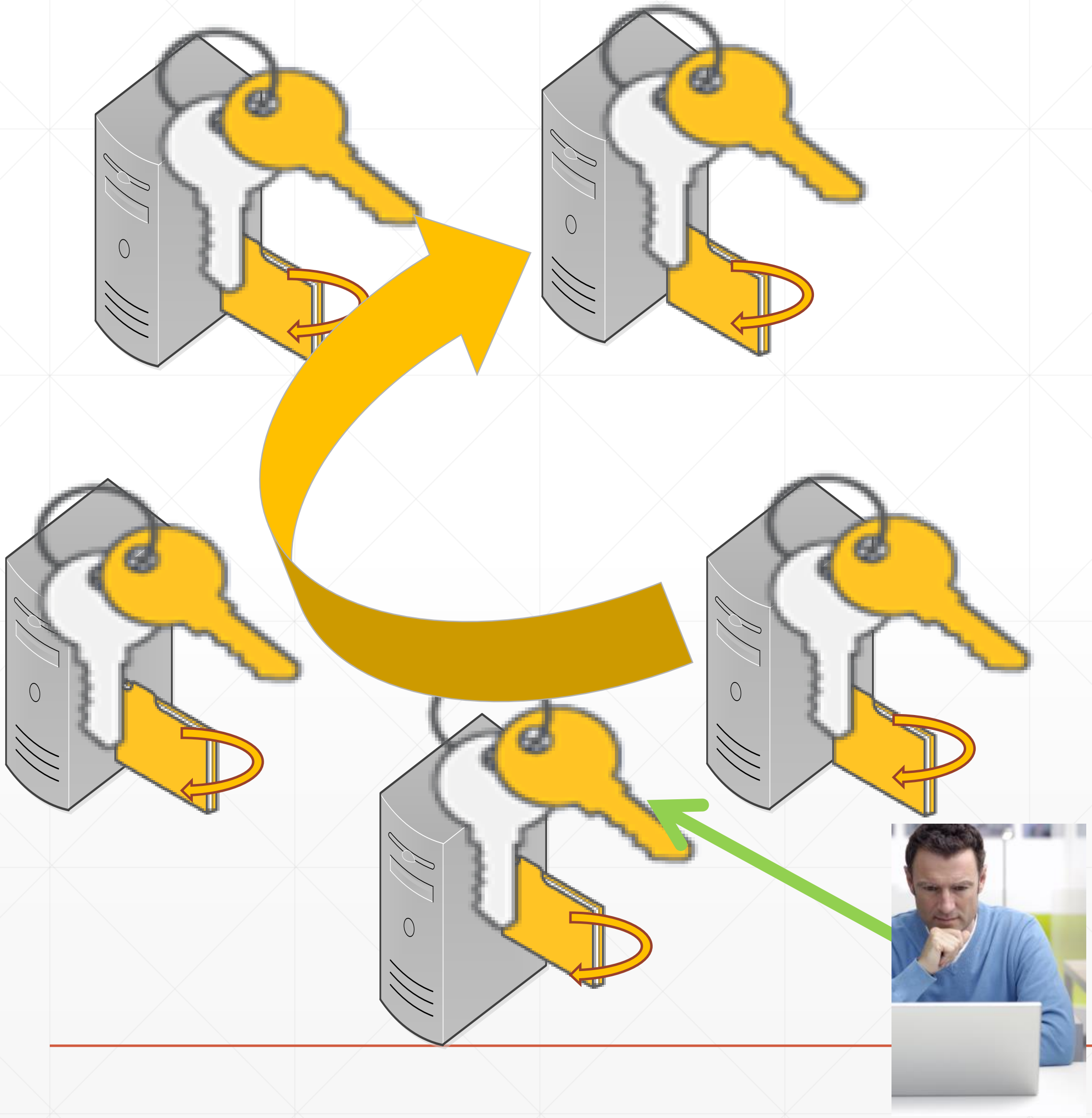
Updating zone data

Overview ✓

DNSSEC

Performance

More…



1. Client sends dynamic update to any authoritative DNS server
2. That DNS server updates its own copy of the zone and generates signatures
3. The *unsigned* update is replicated to all other authoritative servers
4. Each DNS server adds the update to its copy of the zone and generates signatures
5. The DNSSEC settings of zone can also be updated

Key Rollover Process

- Zone Signing Key Rollover:
    - Uses Pre-Publish Mechanism
- Key Singing key Rollover :
    - Uses Double Signature Mechanism
- Trust Anchor Management: RFC 5011 and Hold Down Time
- Key Retirals

Key Management has low TCO

- Automated key rollovers
  - Key rollover frequency is configured per zone
  - Key master automatically generates new keys
  - Secure delegations from the parent are also automatically updated
  - Manual Rollovers are also available

- Signatures stay up-to-date
  - New records are signed automatically when zone data changes
    - Static *and* dynamic updates
    - NSEC records are kept up to date

Microsoft