

Serverteknologi I – Projekt opgave

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Introduktion

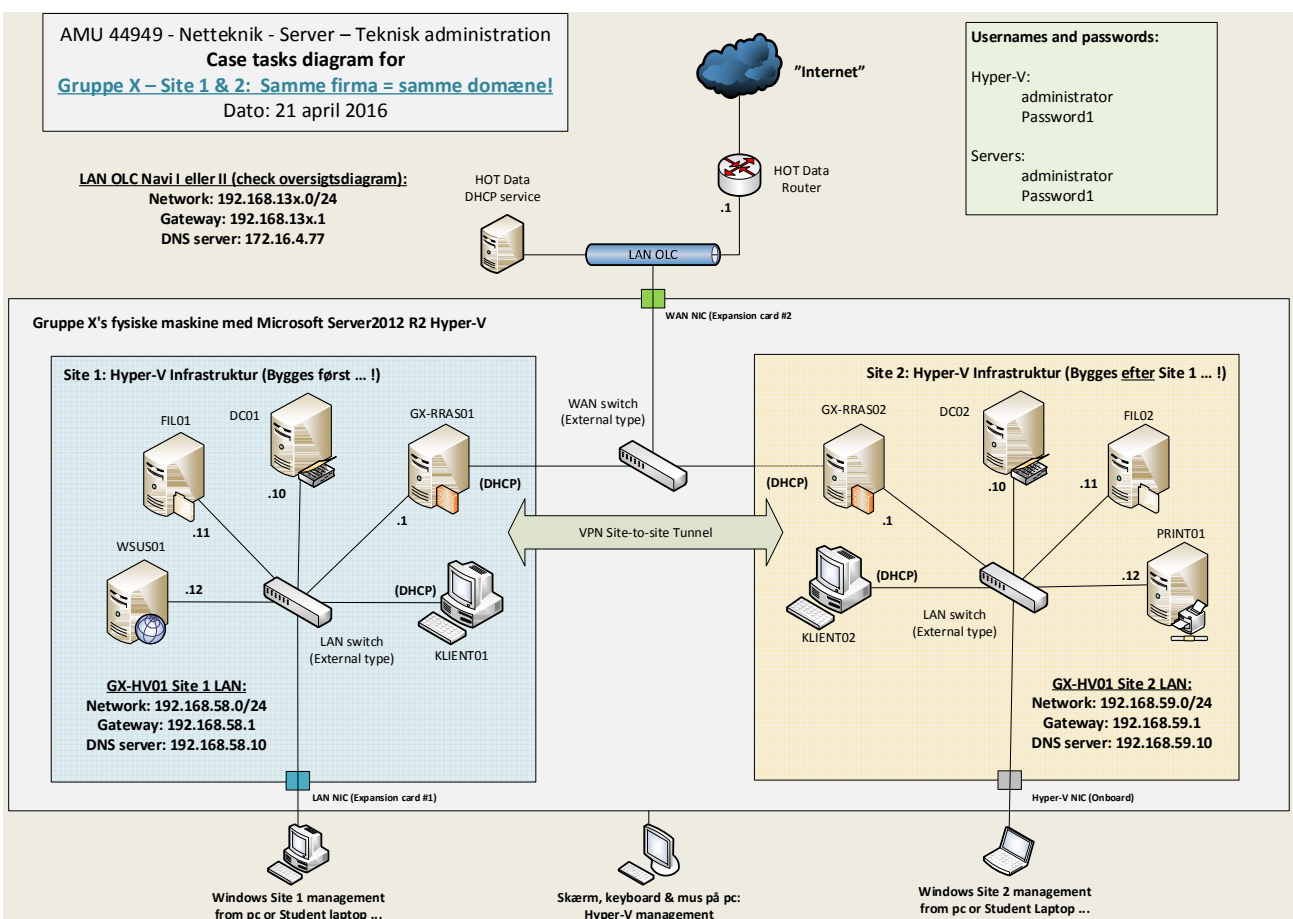
Velkommen til faget ServerTeknologi I.

Denne uge er planlagt som en projektuge hvor du selv eller din gruppe skal opbygge et komplet Microsoft Server2012 R2 server infrastruktur fra bunden af.

Til at hjælpe jer vil der blive udleveret videoguides og vejledninger som viser hvordan systemerne skal konfigureres, og der vil også være læsematerialer.

Læse materialerne er vigtige til at få teoretisk viden fra, da guiderne kun fungerer som praktiske demonstrationer.

Topologitegningen herunder viser et eksempel på det system din gruppe selvstændigt skal bygge op fra grunden af (en stor arbejdstegning udleveres til gruppen af underviseren):



Systemet består af to virtuelle 'fysiske sites', **Site1** og **Site2**, begge virtualiseret i den samme fysiske HP pc, hvilket er repræsenteret af de blå- og gulfarvede områder. Det betyder at alt som er inde i de to felter skal laves virtuelt på Hyper-V serveren. Bemærk: Hvis gruppen er nødt til at benytte de ældre Lenovo pc'er, så deles de to fysiske sites blot ud på hver sin Lenovo pc.

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Mål for kurset

Målpinde

- 1:** Eleven kan, på et niveau svarende til MCTS - "Windows Server 2008 Network Infrastructure", installere og konfigurere et serversystem og anvende serversystemets netværksservices og -funktioner, herunder DHCP, DNS (DDNS, WINS) og Firewall/Routing.
- 2:** Eleven kan konfigurere og opsætte serveroperativsystemet i forhold til fjernadgang via Remote Access og VPN.
- 3:** Eleven kan konfigurere netværkssikkerheden ved anvendelse af systemet sikkerheds features som Network Access Protection (NAP), Public Key Infrastructure (PKI) og Internet Protocol Security (IPSec).
- 4:** Eleven kan administrere serveroperativsystemets forskellige værktøjer til Backup, Replikering, Disk Quota og Distributed File System (DFS).
- 5:** Eleven kan konfigurere og administrere printning, herunder printkø, prioritering mv.
- 6:** Eleven kan håndtere brugernes rettigheder i NTFS filsystemet.
- 7:** Eleven kan anvende operativsystemets indbyggede værktøj til administration og optimering af systemet, og konfigurere Windows Server Update Services (WSUS).

ηβγαρε βελιγες (μεγε):

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Agenda

Fase 1: Server introduktion & installation, Hyper-V & DNS

Læsning

Før fase 2 skal du selvstændigt have læst / skaffet dig viden om følgende Server-emner:

- What are the hardware requirements for Server 2012 R2?
- Which differences are there between the Server 2012 R2 editions?
- What are the advantages of Server Core Edition?
- How do you install Server 2012 R2?
- What is a DNS server?
- How does DNS work?

Vi anbefaler at du finder informationen i de udpegede bøger til kurset, en bog efter eget valg eller ved at finde informationen på technet.microsoft.com (Ofte hurtigere end bøgerne ...)

Fase 1's praktiske opgaver

Forberedelser

Hver gruppe skaffer en fysisk maskine (velegnet til virtualisering – spørg underviseren), forbinder den til lokalets netværk og installerer Server 2012 R2 i Datacenter GUI version – 64 bit.

Bemærk: Her i starten af projektet – og frem til guide "2.2 Configuring site-to-site VPN" – skal gruppen kun konfigurere Site 1. Vent med at installere Site 2 til i bliver bedt om det.

Find evt. hjælp til installation af Server 2012 R2 i videoguide 1.3

1.0 Installing Hyper-V

In this task you must

- Install the Hyper-V role in Server 2012 R2 on two physical machines that will be used to virtualize servers and clients in the two sites.

1.1 Configuring Hyper-V network

In this task you must

- Configure the Hyper-V network with an internal LAN network and an external WAN network.

Get help in guide 1.1

1.2 Configuring Hyper-V virtual hardware and Routing and Remote Access Server (RRAS)

In this task you must

- Configure the virtual hardware for RRAS0x with
 - Name:Gx-RRAS0x (x is group number)
 - 2048 MB RAM
 - Max number of CPUs
 - 2 network adapters connected to the virtual LAN and WAN switches respectively
 - 1 harddisk 40 GB
 - Copy Server 2012 R2 ISO from \\172.16.4.88\Share\$ and mount it in the virtual DVD drive

Get help in guide 1.2

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1.3 Installation of Server 2012 R2 on the virtual Hyper-V machine and basic setup

In this task you must

- Install Server 2012 R2 on the server Gx-RRAS0x
 - Password: **Password1**

Get help in guide 1.3

1.4 Basic setup

In this task you must

- Do basic configuration of Gx-RRAS0x in relation to the topology drawing.
 - Hostname
 - IP addresses
 - Naming the network adapters in Windows

Get help in guide 1.4

1.5 Configuring the Hyper-V virtual hardware for the domain controller

In this task you must

- Configure the virtual hardware for DC0x (x is group number)
 - Name: **DC0x**
 - 2048 MB RAM
 - Max number of CPUs
 - 1 network adapter connected to the virtual LAN switch
 - 1 harddisk 40 GB
 - Mount ISO with Server 2012 R2 in the virtual DVD drive

Get help in guide 1.5

1.6 Installation of Active Directory

In this task you must

- Install DC0x and do basic configuration in relation to the topology drawing
- Primary DNS IP must be 127.0.0.1 (localhost, the server will use itself as DNS server)
- Install Active Directory
 - New domain in new forest: **domain.local**

Get help in guide 1.6

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Fase 2: Routing- and remote access server, NAT, site-to-site VPN & DHCP

Læsning

Før fase 3 skal du selvstændigt have læst / skaffet dig viden om følgende Server-emner:

- How do you configure a DNS server?
- How do you configure NAT on a RRAS server?
- How do you configure site-to-site VPN an a RRAS server?
- What is a DHCP server?
- How do you configure a DHCP server?
- What is Routing and Remote Access Server? (RRAS)

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Fase 2's praktiske opgaver

Forberedelser

Alle opgaver fra tidligere fase skal være gennemført.

Installer nu den virtuelle og 'fysiske' Site2 i gruppens Hyper-V system.

- I skal gentage installationerne fra Site1, blot med Site2 IP adresser mv. fra tegningerne
 - Hvordan var det nu lige? ☺
- Husk at skiftes til at sidde ved tastaturet, så alle får praktisk erfaring
- Benyt gerne ventetider under installationerne til at læse i relevante afsnit i bøgerne

1.7 Gx-RRAS0x DNS configuration and member server

In this task you must

- Do LAN and WAN interface DNS configuration following best practice
 - Point the primary DNS server on all interfaces to the internal DNS server
- Make Gx-RRAS0x member server of your Active Directory domain: domain.local

Get help in guide 1.7

1.8 Installation and configuration of Routing and Remote Access (RRAS)

In this task you must

- Install and configure Gx-RRAS0x as a Routing and Remote Access server with NAT
- Prepare RRAS for client/server VPN and site-to-site VPN by installing the components
 - (Don't do any demand-dial configuring yet)
- Test internet connectivity from the LAN network

Success criteria: When you can ping 8.8.8.8 from DC02 with RRAS02 as your gateway. (DNS has not been configured yet so you cannot ping by name)

Get help in guide 1.8

2.0 Installation of workstations

- In this task you must Install and konfigurere Klient01 and Klient02 in relation to the topology drawing

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2.1 Installing and configuring DHCP

In this task you must

- Install DHCP on both DC01 and DC02 with the following configuration:
- One scope per DHCP server, that covers the subnet of the local site
- Exclusion of host IP 1-19.
- Scope options must point all DHCP clients to the local DNS server as their primary DNS and the DNS server in the opposite site as their secondary DNS server
- Scope options must point all DHCP clients to the local RRAS server as their default gateway

Success criteria: When the workstations in each site get their IP address from the local DHCP server (Check this with ipconfig /all) and have internet access (Check this by browsing the web)
Get help in guide 2.1 (Guide shows how to configure DC01 only)

2.2 Configuration of Site-To-Site VPN, RRAS

In this task you must

- Connect the two sites with a permanent site-to-site VPN connection
- The connection must be encrypted with PPTP and must be authenticated with EAP-MS-CHAPv2

Get help in guide 2.2

2.3 Configuration of Active Directory Sites

In this task you must

- Create Site 1 and Site 2 in Active Directory sites and services, making two functional Active Directory sites with service localization

Get help in guide 2.3

2.4 Installation of an additional domain controller and DNS server

In this task you must

- Configure DC02 as an additional domain controller and DNS server. Thereby making Active Directory and DNS redundancy

Get help in guide 2.4

2.5 Configuring DHCP redundancy with the 80/20 rule

In this task you must

- Configure DHCP redundancy by using the 80/20 rule between DC01 and DC02
- Configure each RRAS server with a DHCP relay agent, that forwards the DHCP broadcast packets to the DHCP server in the opposite site

Get help in guide 2.5

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Fase 3: ACL, permissions, shares, DFS, organisational units og WSUS

Læsning

Før fase 4 skal du have læst / skaffet dig viden om følgende emner:

- What is an Access Control List (ACL) in relation to files and folders?
- Which permissions does the various NTFS permissions give?
- What is a shared folder?
- Which permissions does the various share permissions give?
- What is the relation between NTFS ACL and share ACL, when a user tries to access a network share?
- What is Distributed File System (DFS)?
- How do you configure DFS?
- What are Microsoft best practices for structuring Organizational Units (OU's) in an Active Directory domain?
- What is Windows Server Update Services? (WSUS)
- How do you configure and use WSUS?

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Fase 3's praktiske opgaver

Forberedelser

Alle opgaver fra tidligere faser skal være gennemført

2.6 Structuring Active Directory OU's and creating accounts

In this task you must

- Make all installed servers and workstations members of the domain.local domain if not already done (See guide 1.7 for help)
- Make a structure in Active Directory for computer –and user accounts, that supports the following departments.
 - Management
 - Production
 - Administration
 - Sales
- Create one user account per department– name freely
- Create one global group per department – name after the department
- Add the users in each departments to the global group of each department

Get help in guide 2.6

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2.7 Installation and configuration of WSUS

In this task you must

- Install the server WSUS01 in relation to the topology drawing
- Configure WSUS01 with two virtual harddisks each 40 GB
- Make WSUS01 member of the domain.local domain.
- Install the WSUS role and configure all machines to use the WSUS server as their Microsoft Update server location (Using Group Policy)

Notice: A WSUS server performs best with a minimum of 2GB RAM.

Get help in guide 2.7.1 Hyper-V ekstra disk

Get help in guide 2.7.2 WSUS

2.8 Configuration of Access Management with NTFS and shares following Microsoft best practice

In this task you must

- Install the server FIL01 in relation to the topology drawing and with 2 virtual hard disks each 40 GB.
- Create shares, ACL groups in Active Directory and configure permissions in relation to the below scheme and by following Microsoft best practices for Access Management.

		Shares		
Employees in global groups		Administration	Management	Production
Administration		Read and write – delete own files	Read	Read
Management		Read and write – delete own files	Read and write – delete own files	
Production		Read	Read	Read and write –

Production	Read	Read	write –

Fase 4: Ekstra opgaver, opsamling og afslutning 😊