

# Willkommen zum D-Link Webinar

Start um 11:00 Uhr

Wenn es Ihnen zu ruhig ist,  
sind die Mikrofone ausgeschaltet 😊

Fragen können natürlich im Chat gestellt  
werden!



# Managed Switch Solution 2011

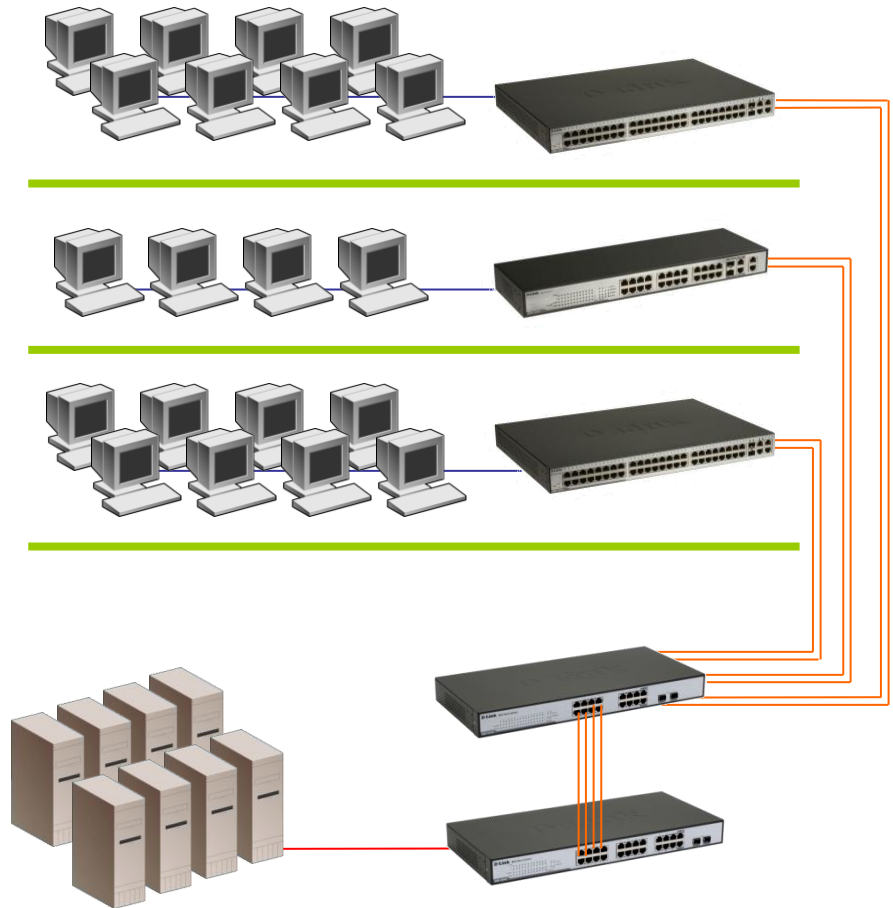
Michael Seipp

15. April 2011



# Agenda

- › **Managed Switch Solutions**
- › Funktionsweise Switches
- › Stack vs. Chassis
- › Port Channel
- › VLANs
- › Spanning Tree



Etagenverteiler, Konzentrator & Server-Switch

# Managed Switch Solution

## › Funktionsweise Managed Switches

- [Store & Forward (Cut-through)]

## › System Konfiguration

- Information
- IP Address
- Jumbo Frame
- PoE
- System Log, Trap
- [Time Range]
- Time
- User
- [Power Saving]
- SNMP

The screenshot displays the D-Link web management interface for a DGS-3100-48 switch. The interface is divided into several sections:

- Header:** D-Link logo and "Building Networks for People" slogan. A navigation bar includes "Save", "Tools", and "Stack ID" (set to 1). The status bar shows "Up Time: 2 days 5:10:13" and "Logged in as administrator, admin - 192.168.0.100".
- Left Navigation Panel:** A tree view under "Configuration" for "DGS-3100-48". The "System Information" menu item is selected and highlighted in blue. Other visible items include IP Address, Stacking Settings, Port Configuration, ARP Settings, User Accounts, System Log Host, SNMP Settings, DHCP Relay, DHCP Auto Configuration, Firmware Information, Telet Setting, L2 Features, QoS, Security, Monitoring, and ACL.
- Main Content Area:** Titled "System Information", it displays various system parameters and their values:

Unit ID	01
MAC Address	00-40-14-65-12-58
Firmware Version	1.00.01
Hardware Version	0.000.01
Serial Number	1234(unit 1)
System Contact	<input type="text" value="Peter"/>
System Name	<input type="text" value="R&amp;D SD8"/>
System Location	<input type="text" value="5F-1"/>
Login Timeout (minutes)	<input type="text" value="20"/>

An "Apply" button is located at the bottom right of this section.
- Bottom Section:** A "STACKING STATUS" section showing a grid of status indicators for multiple switch units.

# Managed Switch Solution

## › Funktionsweise Managed Switches

## › Port-Konfiguration

- Description
- State
- Speed, Duplex
- Flow Control
- MAC Address Learning
- [Connection]
- [MDIX (Auto-Uplink)]
- [Medium (Combo Ports)]

The screenshot displays the D-Link web management interface for a DGS-3100-48 switch. The interface includes a navigation tree on the left, a top status bar, and a main configuration area. The main configuration area is titled "Port Setting" and shows a table for "Unit 1 Settings".

Unit	From Port	To Port	State	Speed	Flow Control	Learning
01	01	48	Disabled	Auto	Auto	Enabled

Port	State	Speed	Flow Control	Connection	Learning
1:1	Enabled	Auto	Enabled	Link Down	Enabled
1:2	Enabled	10M Full	Disabled	Link Down	Enabled
1:3	Enabled	100M Full	Disabled	Link Down	Enabled
1:4	Enabled	Auto	Enabled	Link Down	Enabled
1:5	Enabled	Disable	Disabled	Link Down	Enabled
1:6	Enabled	100M Full	Disabled	Link Down	Enabled
1:7	Enabled	10M Full	Disabled	Link Down	Enabled
1:8	Enabled	Auto	Disabled	Link Down	Enabled
1:9	Enabled	Auto	Disabled	Link Down	Enabled
1:10	Enabled	Auto	Disabled	Link Down	Enabled
1:11	Enabled	Auto	Disabled	Link Down	Enabled
1:12	Enabled	Auto	Disabled	Link Down	Enabled
1:13	Enabled	Auto	Disabled	Link Down	Enabled
1:14	Enabled	Auto	Disabled	Link Down	Enabled
1:15	Enabled	Auto	Disabled	Link Down	Enabled
1:16	Enabled	Auto	Disabled	Link Down	Enabled

# Managed Switch Solution

- › Funktionsweise Managed Switches
- › Layer2 Switching Konfiguration
  - Bandbreitenmanagement

The screenshot displays the D-Link web management interface for a DGS-3100-48 switch. The main configuration area is titled "Bandwidth Control" and shows the following settings:

- Unit: 01
- From Port: 01
- To Port: 01
- RX: Disabled, Rate (3500-1000000) Kbps
- TX: Disabled, Rate (64-1000000) Kbps

An "Apply" button is visible in the bottom right of the configuration area.

Below the configuration area is a table titled "Unit 1 Settings" with the following data:

Port	RX Rate (Kbit/sec)	TX Rate (Kbit/sec)
1:1	No Limit	No Limit
1:2	No Limit	No Limit
1:3	No Limit	No Limit
1:4	No Limit	No Limit
1:5	No Limit	No Limit
1:6	No Limit	No Limit
1:7	No Limit	No Limit
1:8	No Limit	No Limit
1:9	No Limit	No Limit
1:10	No Limit	No Limit
1:11	No Limit	No Limit
1:12	No Limit	No Limit
1:13	No Limit	No Limit
1:14	No Limit	No Limit
1:15	No Limit	No Limit

# Managed Switch Solution

## › Funktionsweise Managed Switches

## › Layer2 Switching Konfiguration

- QoS
- Port => Priority 0-7
- Priority => Class 0-3
- Class/Queue Mechanism  
=> Strict, WRR
- DSCP => Queues

The screenshot displays the D-Link web management interface for a DGS-3100-48 switch. The main configuration area is titled "802.1p Default Priority" and shows the following settings:

- Unit: 01
- From Port: 01
- To Port: 01
- Priority: 00

Below these settings is a table for "Unit 1 Settings" with the following data:

Port	Priority
1:1	0
1:2	0
1:3	0
1:4	0
1:5	0
1:6	0
1:7	0
1:8	0
1:9	0
1:10	0
1:11	0
1:12	0
1:13	0
1:14	0
1:15	0
1:16	0
1:17	0
1:18	0
1:19	0

# Managed Switch Solution

## › Stack (Virtuelles Chassis) vs. Chassis

- Vielseitig verwendbare Einzelkomponenten
- Ausfallsicherheit
- Zentrale Verwaltung

- Ring, Linear, Stern
- Master und Slave
- Backup Master
- Stack Kapazität
- Hot-Swap Stack-Ports
- Redundante PSUs
- Glasfaser Stack-Module

Zentrales oder Verteiltes Switching

Control-Modul und Port-Module

2. Control-Modul

Load-Sharing Kapazität

Hot Swap CM und PM

Mehrere Load-Balance PSUs

Chassis-Bonding i. V.





# Managed Switch Solution

## ➤ Port Channel

- Statisches Trunking (Bündelung)
- Dynamisches Trunking (LACP), IEEE 802.3ad
- Load Balance
  - Layer2 MAC
  - Layer3 IP
  - Kombiniert
- Fail-Over

The screenshot displays the D-Link web management interface for a DGS-3100-48 switch. The main configuration area is titled 'Trunking' and shows the following settings:

- Load Balance: layer 2
- Trunking list table:

ID	Type	Ports	Edit	Clear
01	LACP	1:8, 1:9, 1:10		
02	Static	1:11, 1:12, 1:13, 1:14, 1:15, 1:16		
03	LACP	1:17, 1:18, 1:19		
04	Static			
05	Static			
06	Static			
07	Static			
08	Static			
09	Static			
10	Static			
11	Static			

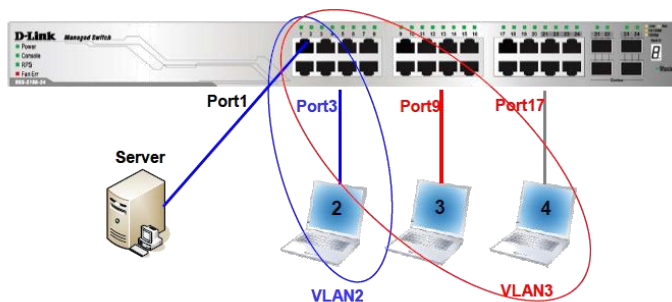
Below the table is the 'Edit Trunking Information' section, which includes a 'Unit' dropdown (set to 01), a 'Group ID' input field, a 'Type' dropdown (set to LACP), and an 'Apply' button. A note states: 'Note: maximum 8 ports in static group and 16 ports in LACP group'. Below this is a grid of checkboxes for ports 1 through 48.

At the bottom of the interface, there is a 'Stacking Status' section showing a list of stacked switches with their respective status indicators.

# Managed Switch Solution

## ➤ VLANs

- Port-basierend (Switch)
- IEEE 802.1Q (LAN)
- „default“ VLAN ID = 1
- Untagged / Tagged
- dynamische VLANs (GVRP)
- VLAN Trunking (Uplink)
- Asymmetric VLAN



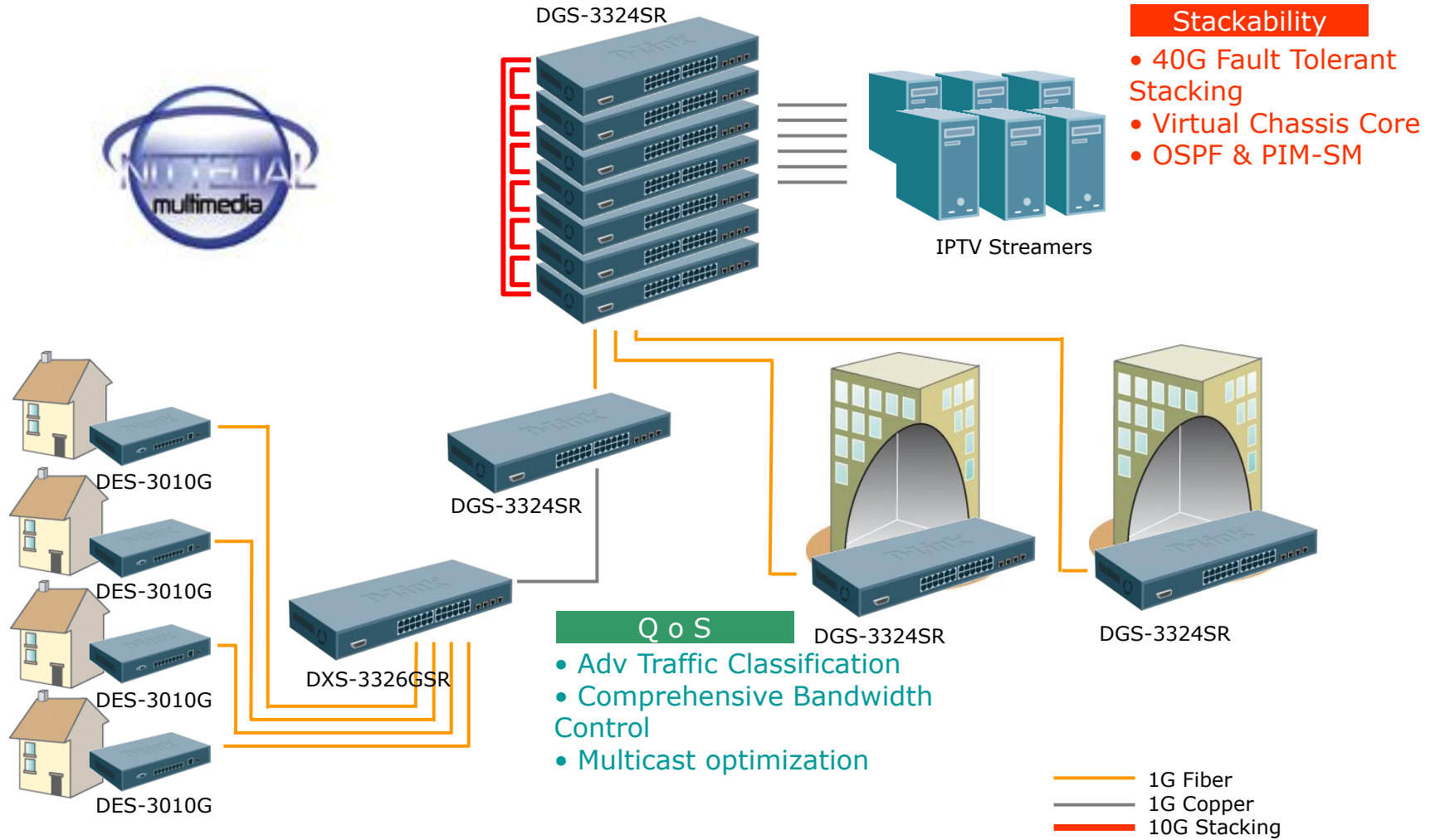
The screenshot shows the D-Link web interface for configuring 802.1Q VLANs. The page displays a table of VLANs with columns for VID, VLAN Name, Untag VLAN Ports, Tag VLAN Ports, and Forbidden VLAN Ports. The table contains 9 rows of VLAN configurations.

VID	VLAN Name	Untag VLAN Ports	Tag VLAN Ports	Forbidden VLAN Ports
01	R&D1	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...	
02	R&D2	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...
03	R&D3	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...
04	R&D4	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...
05	R&D5	1.1,1.3,1.4,1.5	1.2,1.6,1.7,1.8,1.9,1.10	
06	R&D6	1.1,1.3,1.4,1.5	1.2,1.6,1.7,1.8,1.9,1.10	
07	R&D7	1.1,1.1,1.2,1.1,1.3	1.1,4,1.15,1.16	
08	R&D8	1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12...	1.1,4,1.15,1.16	
09	R&D9	1.1,1,1.2,1.1,1.3	1.1,4,1.15,1.16	

The screenshot shows the D-Link web interface for configuring 802.1Q VLANs. The page displays a table of VLANs with columns for VID, VLAN Name, and a grid of checkboxes for Untag, Tag, Forbidden, and Not Member ports. The table contains 24 rows of VLAN configurations.

VID	VLAN Name	Untag	Tag	Forbidden	Not Member
01		All	All	All	All
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
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17					
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19					
20					
21					
22					
23					
24					

# Managed Switch Solution - Beispiel



# Managed Switch Solution

- › Spanning Tree IEEE 802.1D
  - Redundante Verbindungen
  - Rapid, 802.1w
  - Multiple (VLAN) 802.1s

The screenshot displays the configuration page for a D-Link switch, specifically the 'STP Port Setting' for unit 01. The interface includes a navigation tree on the left, a configuration form at the top, and a table of port settings below.

**STP Port Setting Configuration:**

Unit	From Port	To Port	Cost (0=Auto)	Edge	Forwarding BPDU	P2P	State
01	01	48	0	True	Global	True	Enabled

**Port Settings Table:**

Port	Cost	Edge	P2P	Port STP	Forwarding BPDU / Status
1.1	AUTO/20000	NO/NO	AUTO/YES	Enabled	Global/Disable
1.2	AUTO/20000	NO/NO	AUTO/YES	Enabled	Disable/Disable
1.3	AUTO/20000	NO/NO	AUTO/YES	Enabled	Global/Enable
1.4	AUTO/20000	NO/NO	AUTO/YES	Enabled	Enable/Enable
1.5	AUTO/20000	NO/NO	AUTO/YES	Enabled	Global/Disable
1.6	AUTO/20000	NO/NO	AUTO/YES	Enabled	Enable/Enable
1.7	AUTO/20000	NO/NO	AUTO/YES	Enabled	Global/Enable
1.8	AUTO/20000	NO/NO	AUTO/YES	Enabled	Disable/Disable
1.9	AUTO/20000	NO/NO	AUTO/YES	Enabled	Enable/Enable
1.10	AUTO/20000	NO/NO	AUTO/YES	Enabled	Enable/Enable
1.11	AUTO/20000	NO/NO	AUTO/YES	Enabled	Global/Disable
1.12	AUTO/20000	NO/NO	AUTO/YES	Enabled	Enable/Enable
1.13	AUTO/20000	NO/NO	AUTO/YES	Enabled	Enable/Enable
1.14	AUTO/20000	NO/NO	AUTO/YES	Enabled	Disable/Disable
1.15	AUTO/20000	NO/NO	AUTO/YES	Enabled	Global/Enable
1.16	AUTO/20000	NO/NO	AUTO/YES	Enabled	Global/Disable

# Zusammenfassung

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## › Managed Switch Vorteile

- Individuelle Einstellungen
- Mehr Protokoll-Kompatibilität
- Interoperabilität
- Anpassung an veränderte Gegebenheiten
- Vielseitiger Einsatz nur weniger Modelle
- Überwachung
- Statistik
- Auswertung
- Layer3 Funktionen
- Software Upgrades
- Längere Nutzungsdauer (TCO)

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Vielen Dank für Ihre Aufmerksamkeit!

Weitergehende Informationen erhalten Sie unter

**<ftp://ftp.dlink.de/anleitungen/Netzwerkwissen>**

oder telefonisch unter

**+49 (0)6196 – 77 99 500**

