



Webinar

LACP

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Network Specialist

- Ihre Mikrofone sind stumm geschaltet
- Nutzen Sie bitte die Chat Funktion
- Das Webinar startet zur vollen Stunde

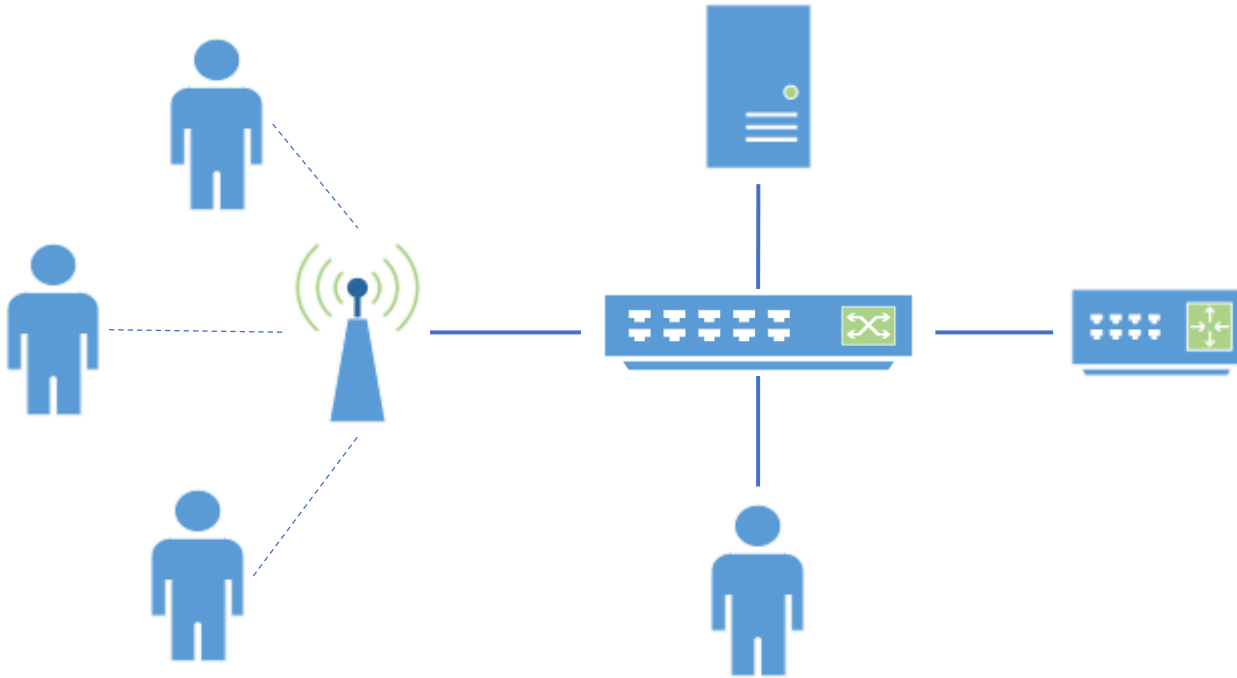
D-Link

Agenda

- Was ist LACP?
- Konfiguration an D-Link Switchen
- LACP & VLAN
- LACP HASH Algorithmen (Übersicht)

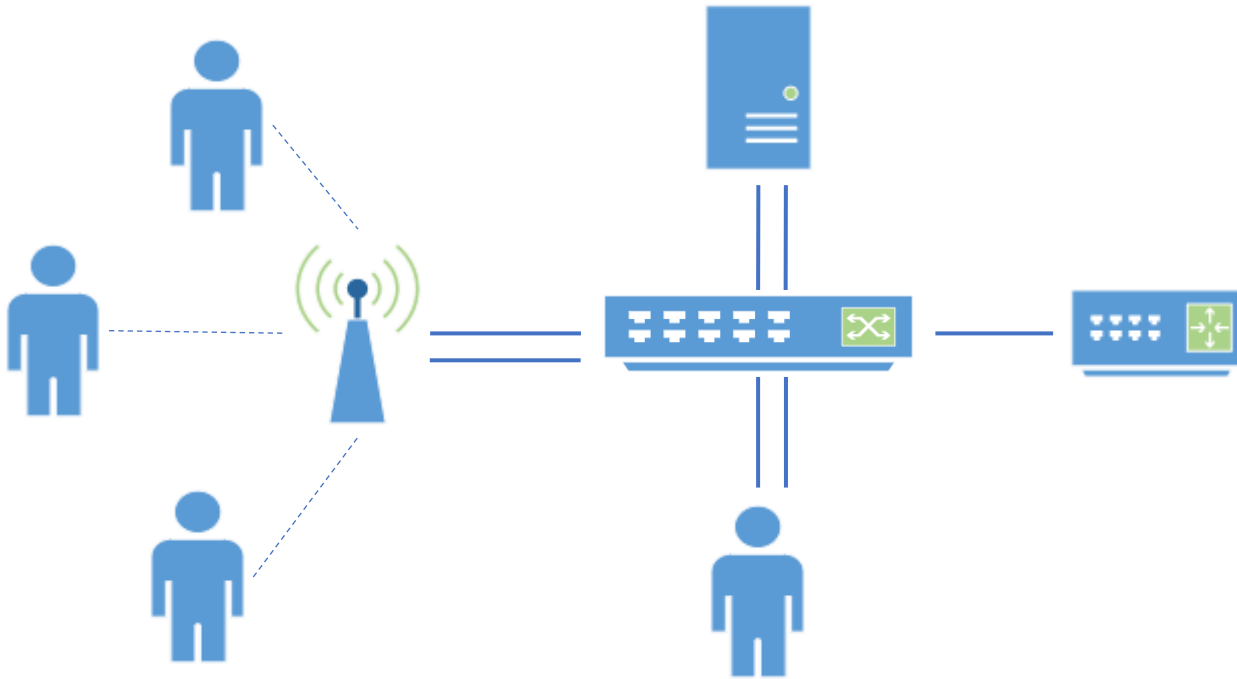
Was ist LACP?

Normales Netzwerk



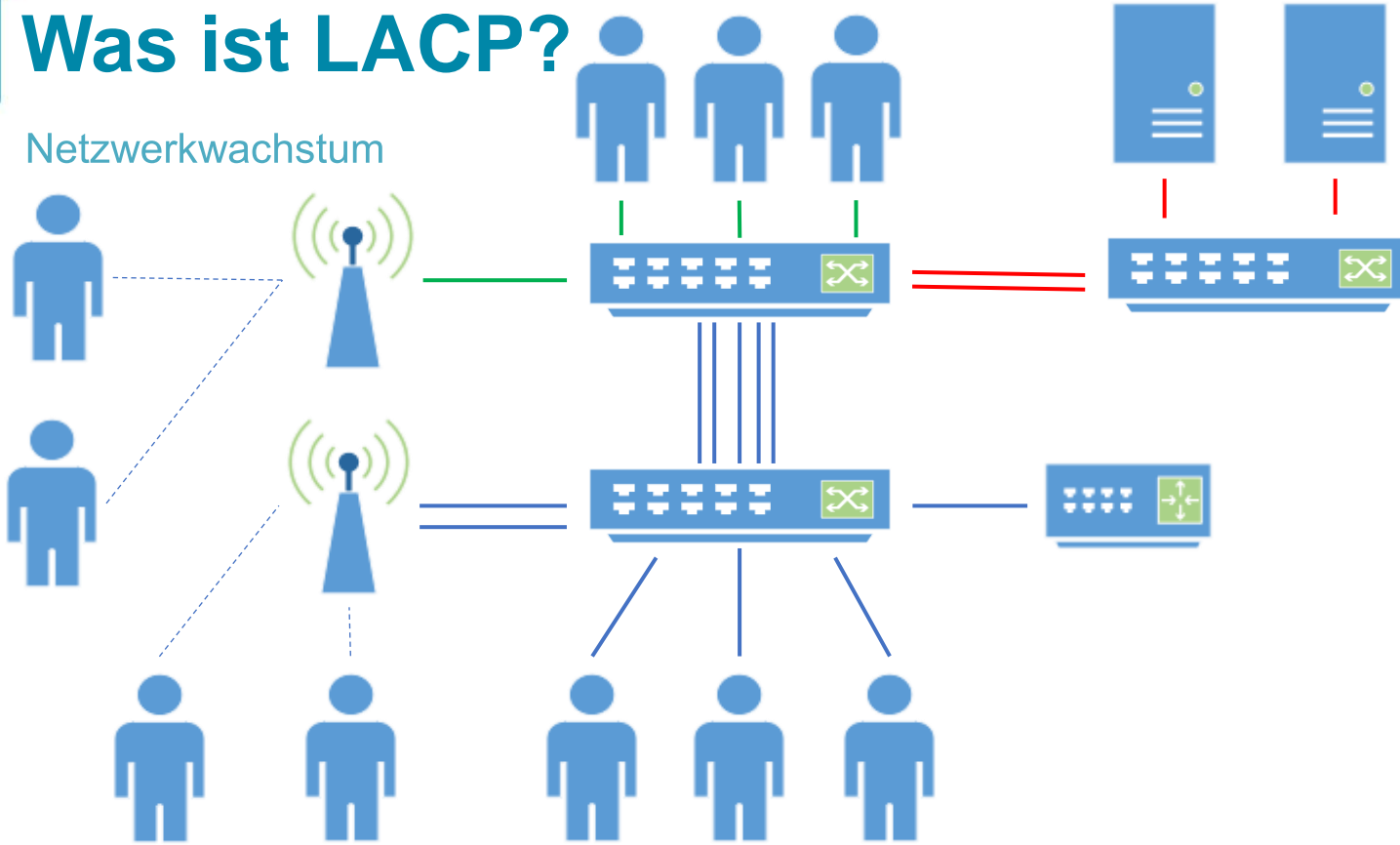
Was ist LACP?

Mögliche LAGs



Was ist LACP?

Netzwerkwachstum



Was ist LACP?

Definition

- Link Aggregation
- Bündelung mehrere physischer LAN Schnittstellen zu einem logischen Kanal
 - Erhöhung des Datendurchsatzes
 - Ausfallsicherheit
 - Wichtig! Es führt nicht zu einer Erhöhung der Geschwindigkeit der einzelnen Verbindung
- Fast jeder Netzwerkhersteller hat ein eigenes Verfahren für Link Aggregation, welche untereinander inkompatibel sind (meistens als statischer Trunk bezeichnet)
- LACP (Link Aggregation Control Protocol)
 - Herstellerunabhängiger Standard für Link Aggregation (IEEE 802.1AX-2008 vormals IEEE 802.3ad)

Was ist LACP?

Funktionsweise

- Bis zu acht Ports können zu einer Link Aggregation Group (LAG) verbunden
- Ein LAG wird wie ein einzelner Port behandelt (kein Loop)
- Erkennung und Kontrolle erfolgt über LACP BPDU (Bridge Protocol Data Unit)
- LACP Modus:
 - Aktiv (Active LACP)
 - Sekündliches Senden des Kontroll-Paketes
 - Passiv (Passive LACP)
 - Nur antworten auf ein empfangenes Kontroll-Paket
 - Aktiv-Aktiv, Aktiv-Passiv (weniger Pakete)
- Load Balancing Algorithmen zum Verteilen der Pakete auf die verfügbaren Leitungen

Konfiguration

DGS-1210 Rev F/G

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Save

Tools

Wizard

Help

Surveillance Mode

Logout

- DGS-1210-10
 - System
 - VLAN
 - L2 Functions**
 - Jumbo Frame
 - Port Mirroring
 - Loopback Detection
 - MAC Address Table
 - Spanning Tree
 - Link Aggregation**
 - Port Trunking**
 - LACP Port Settings
 - Multicast
 - SNTp
 - LLDP
 - L3 Functions
 - QoS
 - Security
 - AAA
 - ACL
 - SNMP
 - Monitoring

Port Trunking

Safeguard

Link Aggregation

Enabled Disabled

Apply

Link Aggregation Settings

Group

Type

Apply

Port	01	02	03	04	05
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Port	06	07	08	09	10
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Maximum 8 ports in static group and 8 ports in LACP group.

Trunking list

Group	Type	Ports	Delete
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Save Tools Wizard Help Surveillance Mode

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 - System
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 - 802.1Q VLAN
 - 802.1Q VLAN PVID
 - Voice VLAN
 - Auto Surveillance VLAN
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 - Monitoring

Port Trunking

Safeguard

Link Aggregation Enabled Disabled

Apply

Link Aggregation Settings

Group

Type

Apply

Port	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Port	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Maximum 8 ports in static group and 8 ports in LACP group.

Trunking list

Group	Type	Ports	Delete
01	LACP	05, 06, 07, 08	Delete

Konfiguration

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Save Tools Wizard Help Surveillance Mode

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LACP Port Settings

Safeguard

From Port: 01 To Port: 10 Activity: Passive Timeout: Short (3 sec)

Port	Activity	Timeout
01	Active	Long (90 sec)
02	Active	Long (90 sec)
03	Active	Long (90 sec)
04	Active	Long (90 sec)
05	Active	Long (90 sec)
06	Active	Long (90 sec)
07	Active	Long (90 sec)
08	Active	Long (90 sec)
09	Active	Long (90 sec)
10	Active	Long (90 sec)

Konfiguration

DGS-1100-V2



Save Tools Wizard Online Help

Logged in as: admin- 192.168.10.16 Logout

Fuzzy Search

- DGS-1100-10MPV2
 - System
 - Management
 - L2 Features**
 - FDB
 - VLAN
 - Spanning Tree
 - Loopback Detection
 - Link Aggregation**
 - L2 Multicast Control
 - LLDP
 - QoS
 - Security
 - OAM
 - Monitoring
 - Green

Link Aggregation

Channel Group Information

From Port	To Port	Group ID (1-8)	Mode
<input type="text" value="eth5"/>	<input type="text" value="eth8"/>	<input type="text" value="1"/>	<input type="text" value="On"/>

Add Delete Member Port

Note: Each Channel Group supports up to 8 member ports. Up to 8 Channel Groups.

Total Entries: 0

Channel Group	Protocol	Max Ports	Member Number	Member Ports
---------------	----------	-----------	---------------	--------------

Konfiguration

DGS-1100-V2

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Link Aggregation

Channel Group Information

From Port: eth1 To Port: eth1 Group ID (1-8): Mode: On

Note: Each Channel Group supports up to 8 member ports. Up to 8 Channel Groups.

Total Entries: 1

Channel Group	Protocol	Max Ports	Member Number	Member Ports	
port channel 1	Static	8	4	eth5,eth6,eth7,eth8	<input type="button" value="Delete Channel"/>

Konfiguration

DGS-1520

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Fuzzy Search

- DGS-1520-28MP
 - System
 - Management
 - L2 Features**
 - FDB
 - VLAN
 - VLAN Tunnel
 - STP
 - ERPS (G.8032)
 - Loopback Detection
 - Link Aggregation**
 - L2 Protocol Tunnel
 - L2 Multicast Control
 - LLDP
 - L3 Features
 - QoS
 - ACL
 - Security

Link Aggregation

System Priority (1-65535)

Load Balance Algorithm

System ID

Channel Group Information

From Port To Port Mode

Note: Each Channel Group supports...

Total Entries: 0

Channel Group	Protocol	Max Ports	Member Number	Member Ports
---------------	----------	-----------	---------------	--------------

Konfiguration

DGS-1520

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Save Tools Wizard Online Help English

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 - L2 Multicast Control
 - LLDP
 - L3 Features
 - QoS
 - ACL
 - Security

Link Aggregation

System Priority (1-65535)

Load Balance Algorithm

System ID 32768,C4-E9-0A-0B-46-00

Channel Group Information

From Port To Port Group ID (1-32) Mode

Note: Each Channel Group supports up to 8 member ports.

Total Entries: 0

Channel Group	Protocol	Max Ports	Member Number	Member Ports
---------------	----------	-----------	---------------	--------------

Konfiguration

DGS-1520

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 - L3 Features
 - QoS
 - ACL
 - Security

Link Aggregation

System Priority (1-65535)

Load Balance Algorithm

System ID 32768,C4-E9-0A-0B-46-00

Channel Group Information

From Port To Port Group ID (1-32) Mode

Note: Each Channel Group supports up to 8 member ports.

Total Entries: 1

Channel Group	Protocol	Max Ports	Member Number	Member Ports	
Port-channel1	LACP	8	4	eth1/0/5-1/0/8	<input type="button" value="Delete Channel"/> <input type="button" value="Show Detail"/>

VLAN Konfiguration

DGS-1210 F/G

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Auf 192.168.10.156 wird Folgendes angezeigt:
Members in a VLAN have to be in the same trunk.

Ok

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Logout

- DGS-1210-10
 - System
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 - 802.1Q VLAN PVID
 - Voice VLAN
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VID Settings

Safeguard

VID
VLAN Name

Maximum 20 characters.

Back

Apply

Port	Select All	01	02	03	04	05	06	07	08	09	10
Untagged	All	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tagged	All	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not member	All	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

VLAN Konfiguration

DGS-1100-V2/DGS-1520



Save Tools Wizard Online Help

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Fuzzy Search

- DGS-1100-10MPV2
 - System
 - Management
 - L2 Features
 - FDB
 - VLAN
 - VLAN Configuration Wizard
 - 802.1Q VLAN
 - VLAN Interface**
 - Port-based VLAN
 - Management VLAN
 - Asymmetric VLAN
 - Auto Surveillance VLAN
 - Voice VLAN
 - Spanning Tree
 - Loopback Detection
 - Link Aggregation
 - L2 Multicast Control
 - LLDP

VLAN Interface

VLAN Interface Settings

Port Summary

Port	VLAN Mode	Ingress Checking	Acceptable Frame Type		
eth1	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth2	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth3	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth4	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth5	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth6	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth7	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth8	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth9	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth10	Hybrid	Enable	Admit All	VLAN Detail	Edit
port channel 1	Hybrid	Enable	Admit All	VLAN Detail	Edit

VLAN Konfiguration

DGS-1100-V2/DGS-1520



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VLAN Interface

VLAN Interface Settings

Port Summary

Port	VLAN Mode	Ingress Checking	Acceptable Frame Type		
eth1	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth2	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth3	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth4	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth5	Access	Enable	Untagged Only	VLAN Detail	Edit
eth6	Access	Enable	Untagged Only	VLAN Detail	Edit
eth7	Access	Enable	Untagged Only	VLAN Detail	Edit
eth8	Access	Enable	Untagged Only	VLAN Detail	Edit
eth9	Hybrid	Enable	Admit All	VLAN Detail	Edit
eth10	Hybrid	Enable	Admit All	VLAN Detail	Edit
port channel 1	Access	Enable	Untagged Only	VLAN Detail	Edit

LACP Hash-Algorithmen

L2/L3/L4

- Layer 2
 - MAC basiert
 - SRC, DST, SRC-DST
- Layer 3
 - IP basiert
 - SRC, DST, SRC-DST
- Layer 4
 - Session ID basiert

Kontakt



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Wir sind gerne für da.

Ihr D-Link Team



— Vielen Dank —

D-Link