# Ethernet Interface Bonding for RTSP Streaming Server Channel Increment
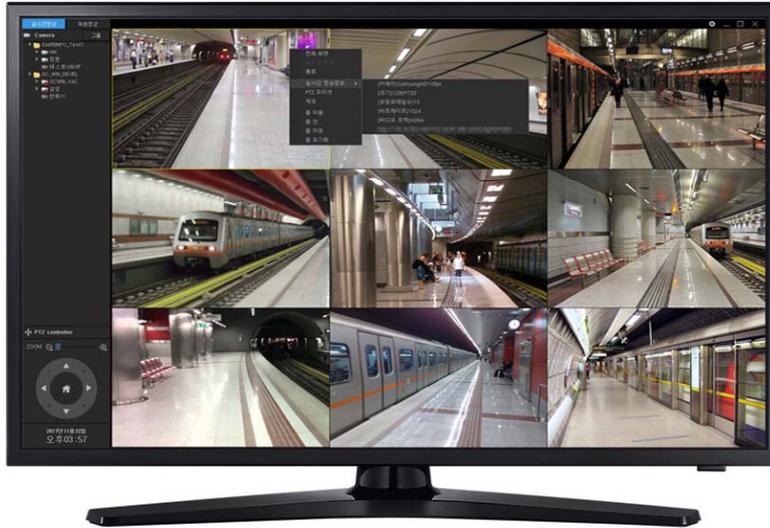
AddPac Technology

Sales and Marketing

Contents

- Network Service Diagram
- RTSP Streaming Server Bandwidth Estimation
- Ethernet Interface Bonding (1G x 2) Procedures for Ethernet Bandwidth Increment

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Network Service Diagram

Large Scale IP Camera Control more than 10000 IP Camera

IP Wall Display

Storage Server

Active Management Server

Active Control Server

Active Streaming & Recording Server

Standby Management Server

Standby Control Server

Standby Streaming & Recording Server

Storage Server

IP Camera

Management PC

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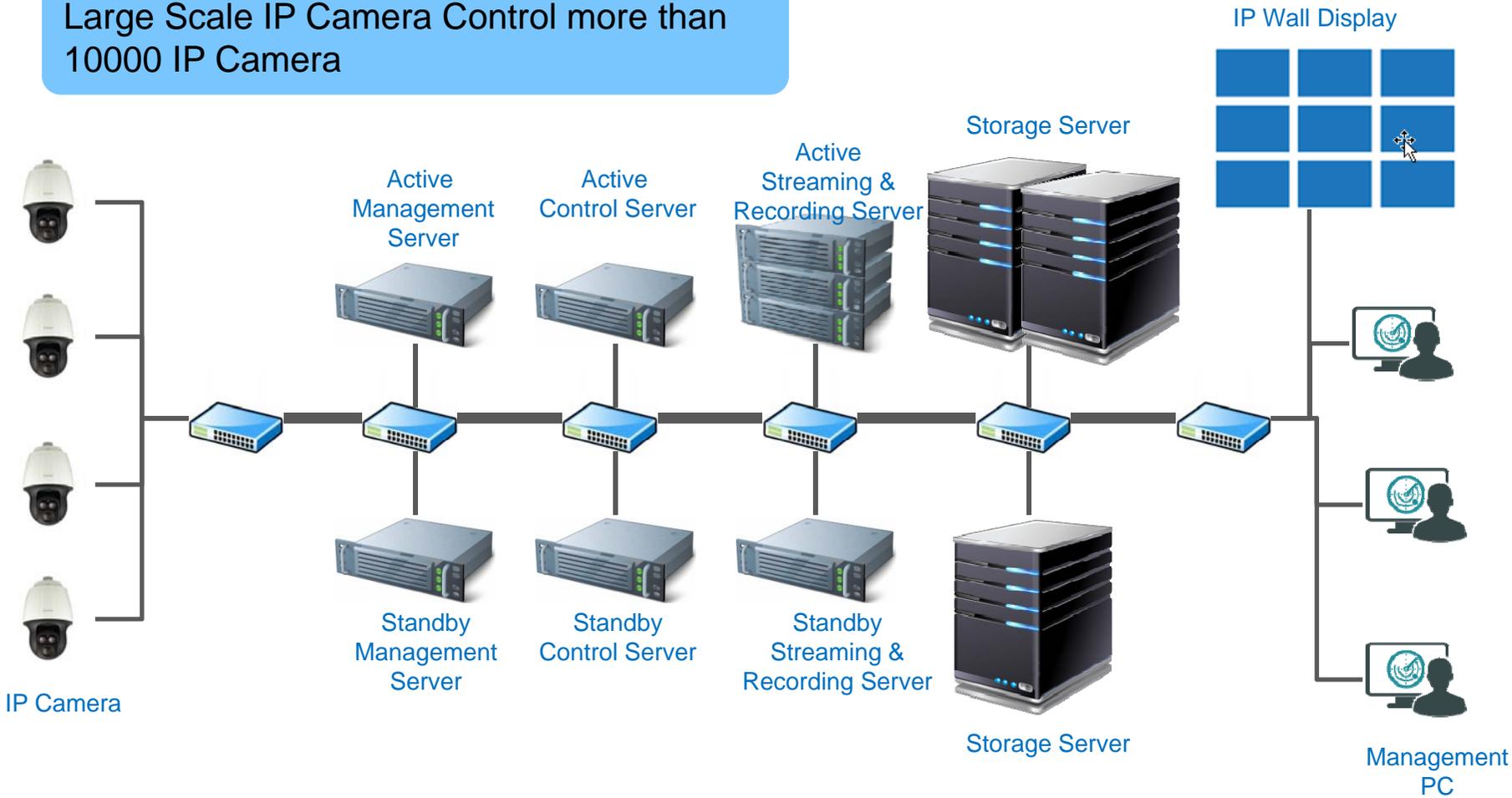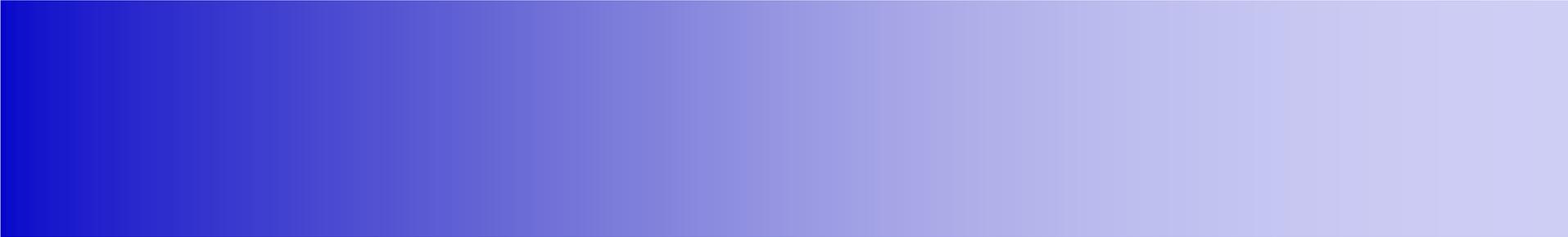
RTSP Streaming Server Bandwidth Estimation

Streaming Server Bandwidth Estimation

Quadruple Encoding

= Full HD + HD + D1 + CIF

= 8Mbps + 4Mbps + 1Mbps + 512K

= 13.5Mbps → 64channel x 13.5 = 864Mbps

Triple Encoding

= HD + D1 + CIF

= 4Mbps + 1Mbps + 512K

= 5.5Mbps → 128 channel x 5.5 = 704Mbps

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Network Diagram

IP Camera   IP Camera

PC

Mobile

LAN

Internet

Streaming
Server   1G Ethernet

LAN

1G Ethernet

Recording
Server   Web Server
                                                    Interface

PC

PC

SAN   10G Optic SAN
         Switch

RTSP
Clients
(VLC, etc)

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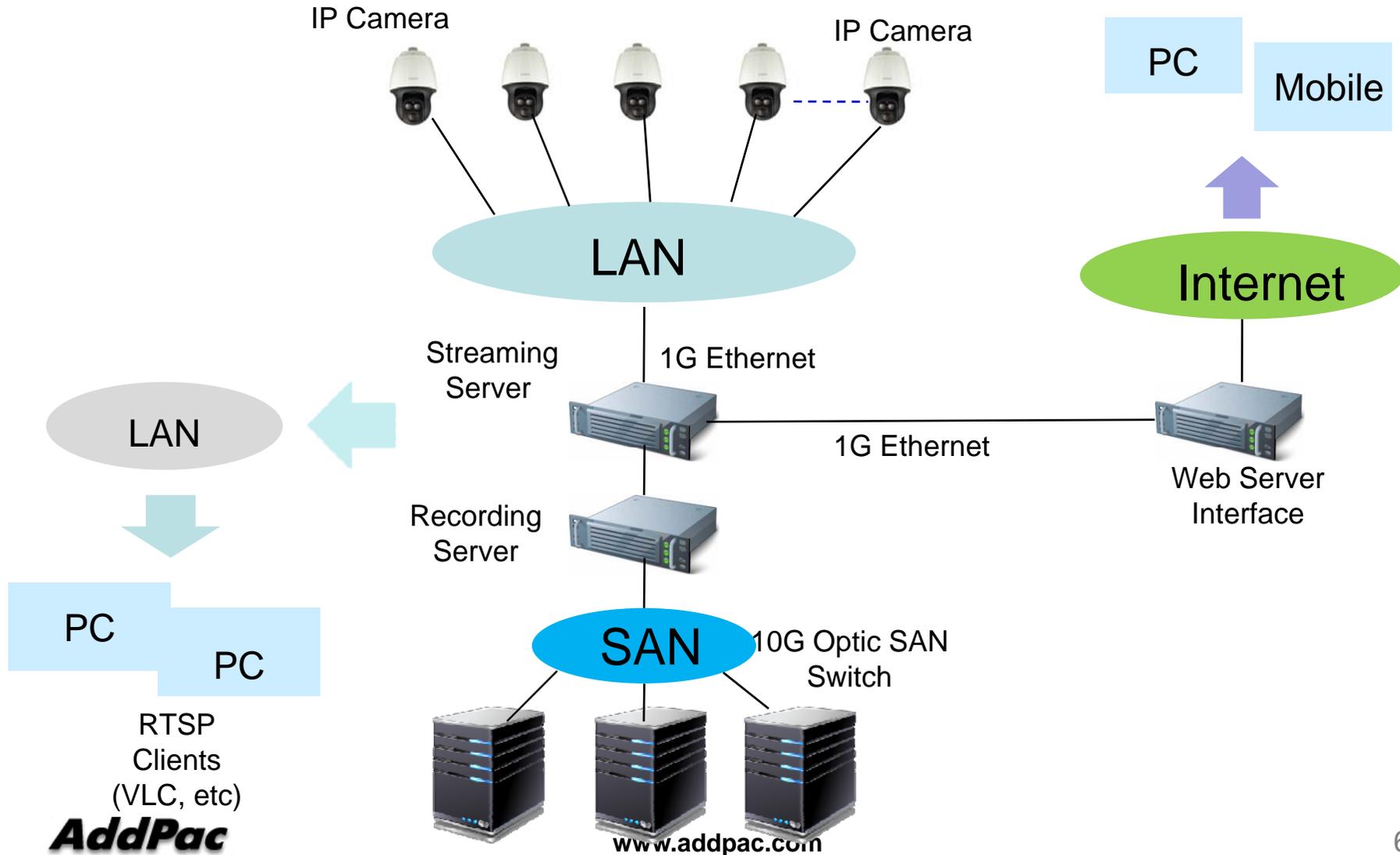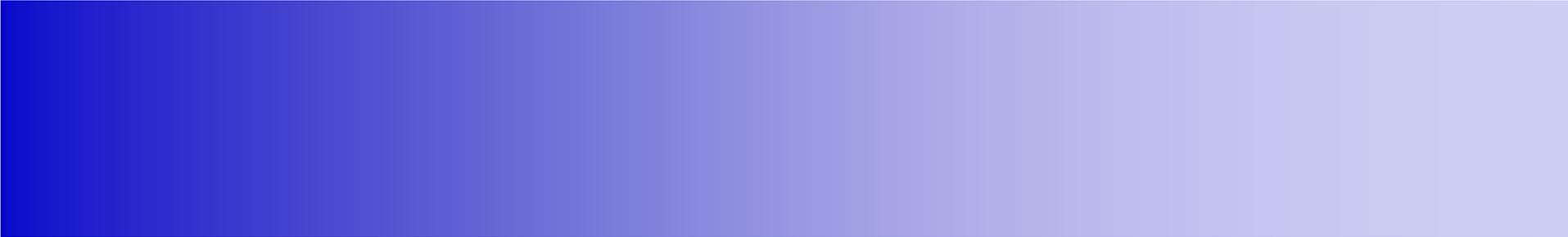
Ethernet Interface Bonding for Bandwidth Increment

Network Diagram (Gigabit Switch Interface)

IP Camera

IP Camera

LAN

Streaming Server

1G Ethernet

Gigabit Switch

Recording Server

SAN

10G Optic SAN Switch

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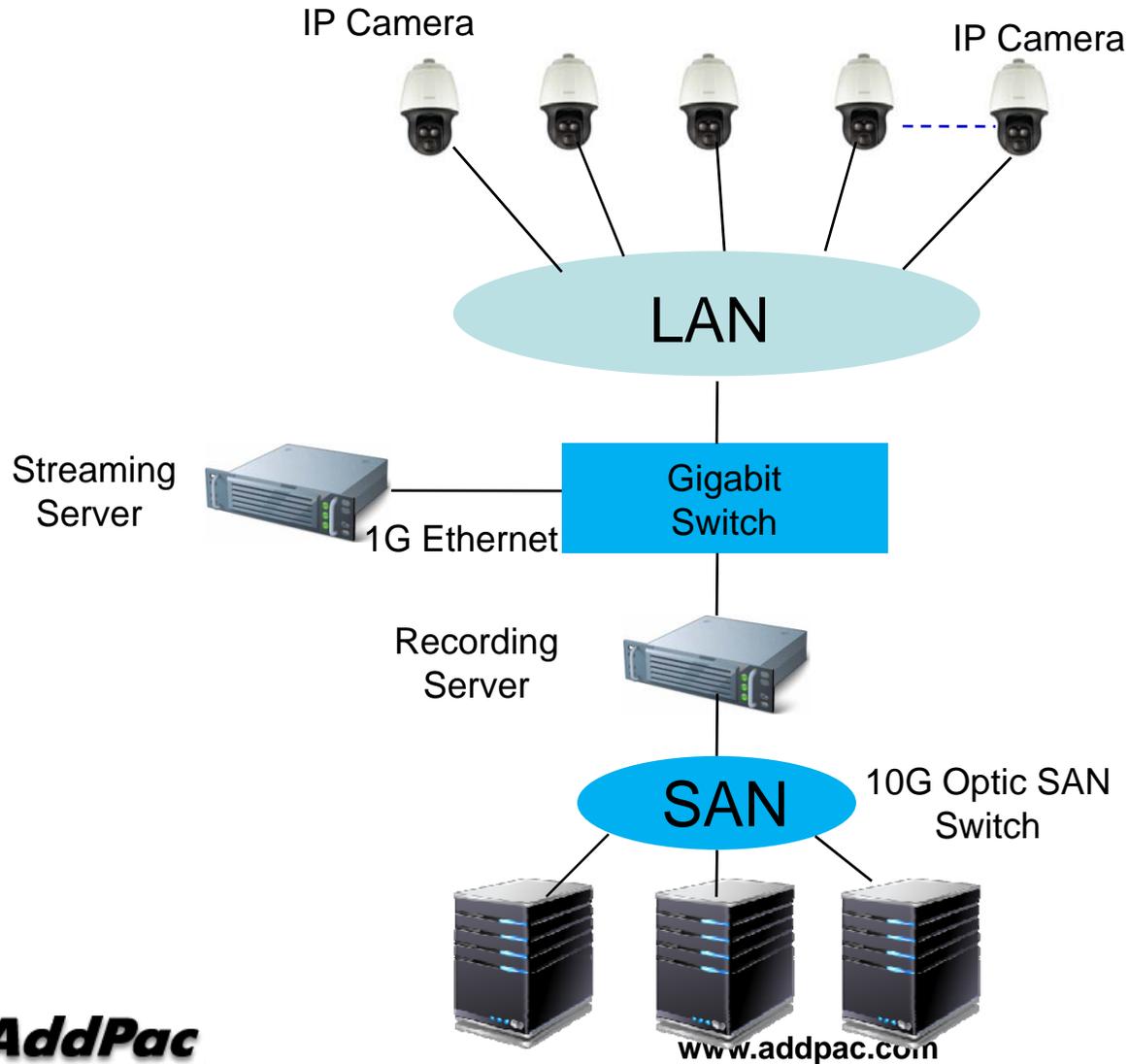
Network Diagram (RTSP Traffic Flow)

IP Camera

IP Camera

LAN

Streaming
Server

1G Ethernet

Gigabit
Switch

Recording
Server

SAN

10G Optic SAN
Switch

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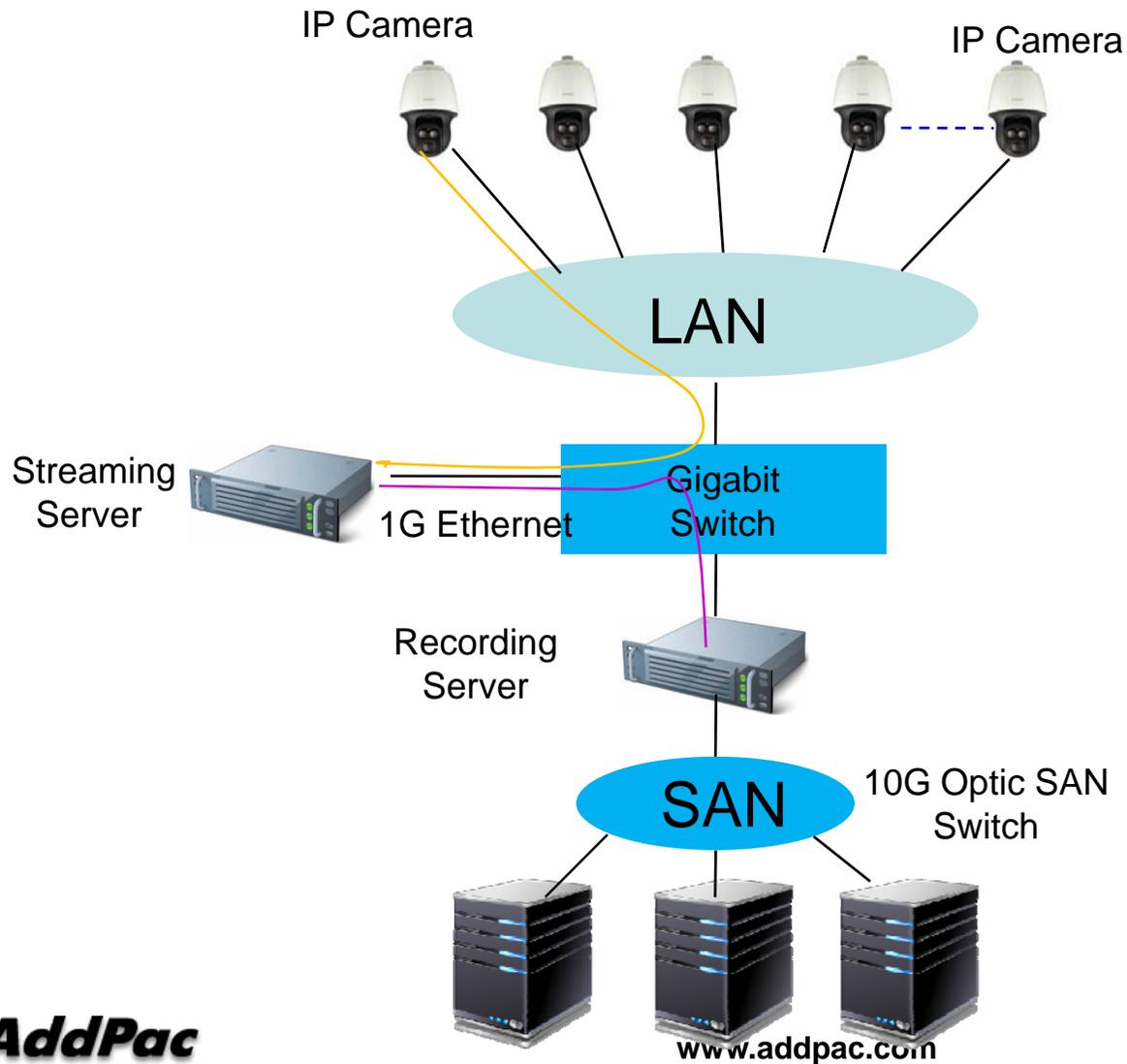
Network Diagram (Ethernet Bonding)

IP Camera

IP Camera

Ethernet
Interface
Bonding
(Virtual 2G)

LAN

Gigabit
Switch

1G Ethernet x 2

Streaming
Server

Recording
Server

SAN

10G Optic SAN
Switch

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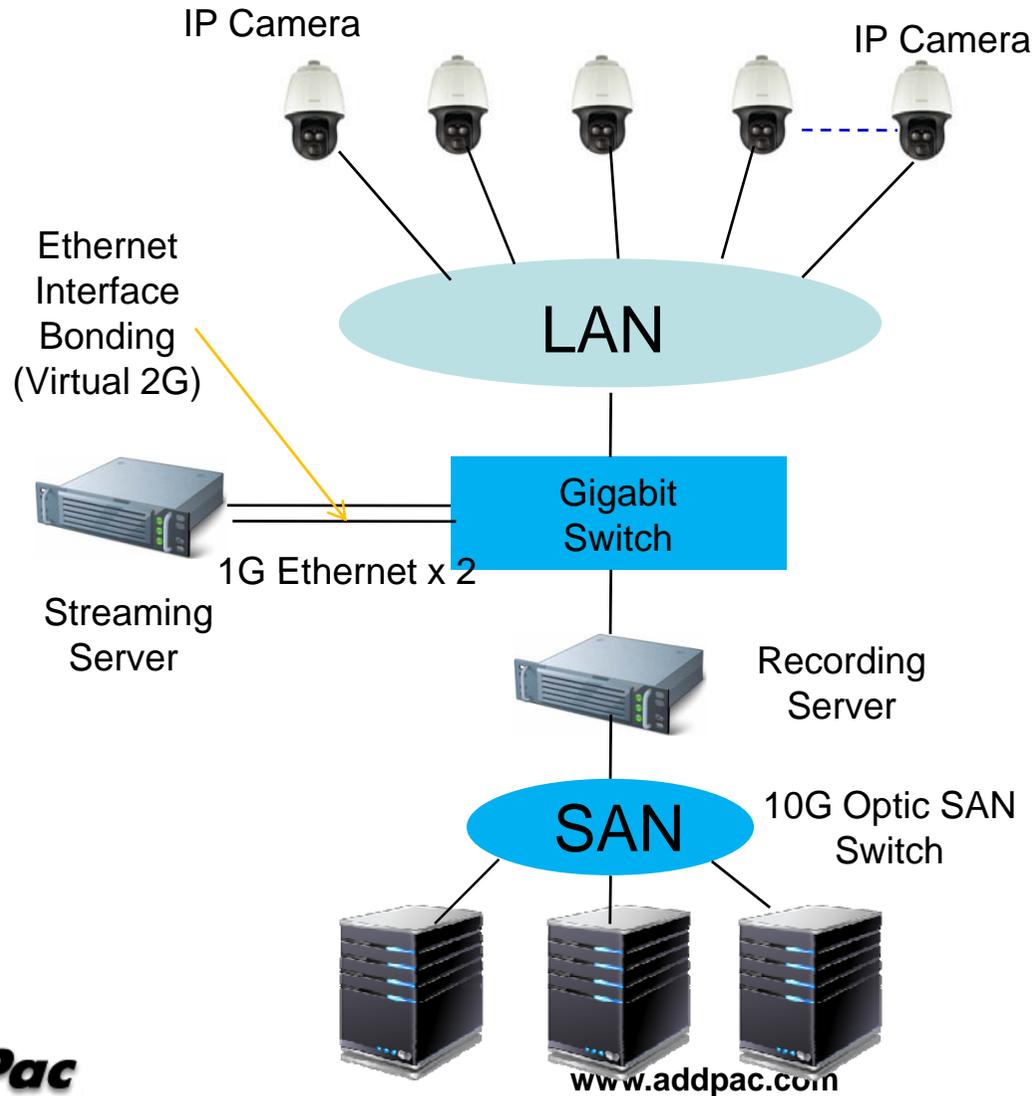
Linux Ethernet Bonding Procedures

- Bond0 Interface Configuration
- Ethernet Interface Eth0, Eth1 Configuration
- Network Environment File Modification
- Module Configuration
- Network Restart & Bonding Interface Check

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Bond0 Interface Configuration

- **Bond0 Interface Configuration**

[root@localhost ~]# vi /etc/sysconfig/network-scripts/ifcfg-bond0

```
DEVICE=bond0
IPADDR=100.100.100.66
NETMASK=255.255.255.0
BROADCAST=100.100.100.255
GATEWAY=100.100.100.1
ONBOOT=yes
BOOTPROTO=none
USERCTL=no
BONDING_OPTS="mode=4 miimon=100"
```

[Bonding Mode]

0 : balance-round robin (round-robin + fault tolerance)

1 : active-standby (active-standby fault tolerance)

2 : balance-xor (similar with 0 mode, XOR(source, destination MAC) +   fault tolerance)

3 : broadcast (link broadcasting both + fault tolerance)

4 : 802.3ad (link aggregation) – switch aggregation scheme

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Ethernet Interface Eth0, Eth1 Configuration

- Ethernet Interface Eth0, Eth1 Configuration

root@localhost ~]# vi /etc/sysconfig/network-scripts/ifcfg-eth0

```
DEVICE=eth0
ONBOOT=yes
BOOTPROTO=none
USERCTL=no
MASTER=bond0
SLAVE=yes
```

[root@localhost ~]# vi /etc/sysconfig/network-scripts/ifcfg-eth1

```
DEVICE=eth1
ONBOOT=yes
BOOTPROTO=none
USERCTL=no
MASTER=bond0
SLAVE=yes
```

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Network Environment File Modification

- ## Network Environment File Modification

  [root@localhost ~]# vi /etc/sysconfig/network

  #Add following Info. In file

  GATEDEV=bond0

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Module Configuration

- Module Configuration

[root@localhost ~]# vi /etc/modprobe.conf

 # Add following Info. In file
alias bond0 bonding
options bond0 miimon=100

[root@localhost ~]# modprobe bonding

[root@localhost ~]# lsmod | grep bonding
bonding   126649 0
ipv6   432161 26 bonding,ip6t_REJECT

Network Restart

- Network Restart & Bond0 Interface Check

[root@localhost ~]# service network restart

[root@localhost ~]# show interfaces

[root@localhost ~]# cat /proc/net/bonding/bond0
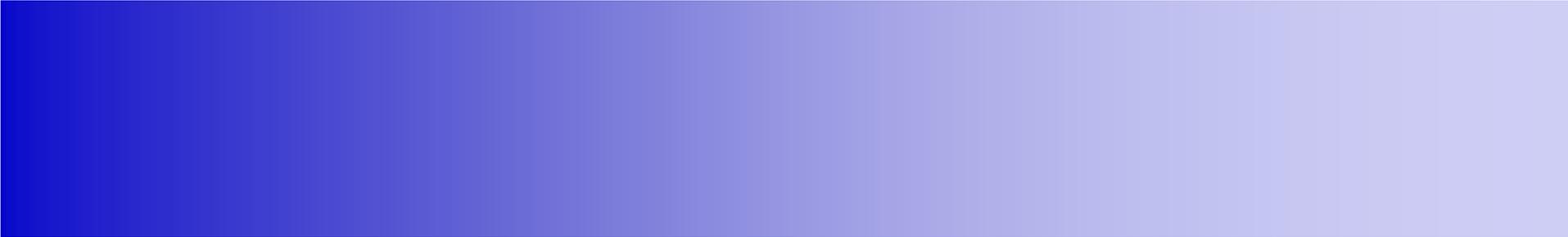
Thank you!

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