MTG Product Introduce

Foreword

- This course is mainly:
  - Describe what is MTG
  - Explain why we need MTG in VoIP network
  - Describe MTG common function
  - Explain Dinstar MTG product function and key feature
  - Introduce Dinstar MTG application scenario

Course Objective

Through this course you will be able to

Understand and know what is MTG

Be familiar with MTG main function

Know Dinstar MTG product and application

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Chapter One About MTG

01

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What is MTG

- Media Trunk Gateway

Function

- Protocol Conversion:convert signaling and media streams between different protocols.
- Media Stream Conversion:convert media formats and codecs.
- Transcoding: They can perform transcoding, which is the process of converting one digital media format to another

Networking Position

- It acts as a bridge between different types of networks, allowing the conversion and transmission of voice and video data across distinct network types.

Application Scenarios

- VoIP Systems: Media gateways are used in VoIP systems to connect traditional telephony users to VoIP networks.

MTG Position

- MTG Position in Network

  - MTG is a crucial component in telecommunications, particularly in the context of Voice over Internet Protocol (VoIP) and multimedia communications.
  - MTG is act bridge function to connect different types of networks,such as:
    - PSTN: Traditional telephone networks(PRI/SS7/R2)
    - IP Networks: Networks that use Internet Protocol for communication
    - Mobile Networks: Interfaces for mobile telephony

Why need MTG

- Interoperability
  - Bridging Different Networks:
    - Media gateways enable communication between circuit-switched networks (like PSTN) and packet-switched networks (like VoIP). realizing the interconversion between SIP and traditional signals like SS7, PRI and R2.
  - Protocol Conversion
    - Signaling Protocol Translation: They facilitate the conversion of signaling protocols (e.g., G.711, G.723, G.729 and iLBC), allowing devices and networks that use different signaling methods to communicate seamlessly.
    - Media Format Conversion: Gateways can convert audio codecs, ensuring that calls maintain quality despite differences in encoding between devices and networks.

Why need MTG(continue)

- Cost Efficiency,Scalability and Flexibility

  - Reduced Call Costs: By enabling VoIP connectivity, media gateways can significantly lower communication costs, especially for long-distance and international calls, by utilizing the Internet for transmission instead of traditional telephony networks.
  - Easily Adaptable: Media gateways allow organizations to scale their communication systems as needed, adding more lines or features without significant overhauls to existing infrastructure.
  - Support for Multiple Interfaces: copper spool cable, fiber optics, and RJ48 E1 wiring which often come with the capability to connect various types of endpoints (IP phones, mobile devices, traditional phones), providing flexibility in how organizations deploy their communication solutions.

Dinstar MTG-High Availability

- Redundancy Dual MCU

  - MTG2000B/MTG3000 support 1+1 power supply and MCU.
  - If one MCU fails, the other can take over immediately, ensuring uninterrupted service. This design significantly enhances system reliability.
  - The switchover can be triggered by abnormal network cables, corresponding network port failure, timed reboot or manual trigger.
  - The switchover does not affect new call connections.

Dinstar MTG-Transcoding

- Feature for Transcoding

  - MTG can be converted for different protocols such as UDP/TCP/TLS.
  - Voice transcoding is typical application such as g. G.711, G.723, G.729 and iLBC
  - MTG can easily achieve compatible between different networks device.

Dinstar MTG-Intelligent Routing

- Routing
  - The MTG has flexible call routing policies
  - It can schedule routes based on policies such as calling and called numbers, trunk sources and types etc.and supports multiple number manipulation.
  - Support flexible dialing rules and operations, allowing users to customize dialing rules according to different working environments
  - The MTG supports number pool,caller/called blacklist and whitelist restriction.are used to control access to the media services and manage the flow of communication. These features enhance security and ensure that only authorized users or devices can connect to the network.

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2.1 Dinstar MTG Overview

2.2 MTG Serial Introduce

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Dinstar MTG Overview

- Key Feature

Voice

Codecs:G.711a/μ law,G.723.1, G.729A/B, iLBC, AMR
Silence Suppression
Comfort Noise
Voice Activity Detection
Echo Cancellation (G.168), with up to 128ms
Adaptive Dynamic Buffer
Voice ,Fax Gain Control
FAX:T.38 and Pass-through
Support Modem/POS
DTMF Mode: RFC2833/Signal/Inband
Clear Channel/Clear Mode

Session Control

Local/Transparent Ring Back Tone
Overlapping Dialing
Dialing Rules,with up to 2000
PSTN group by E1 port or E1 Timeslot
IP Trunk Group Configuration
Voice Codecs Group
Caller and Called Number White Lists
Caller and Called Number Black Lists
Access Rule Lists
IP Trunk Priority

Compatibilty

fully compatible with Asterisk/Elastix/Trixbox/ Freeswitch and mainstream VoIP platform.
With support of ISDN PRI / SS7/R2 MFC, integrating with your legacy PBX or PSTN network is also so easy
With support NGN/IMS

Resiliency

High Availability
1+1 Redundancy MCU, Hot Plug
1+1 Redundancy Channels Protection
Master/Slave Clock Source
Alternative Routing

MTG200

- Cost-effective VoIP Trunk Gateway

1/2 ports E1/T1

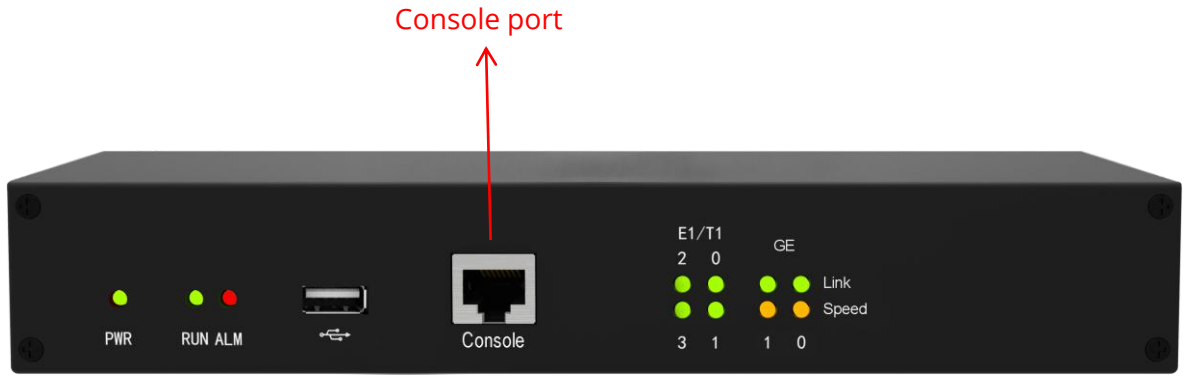
Up to 60 simultaneous calls

NGN/IMS

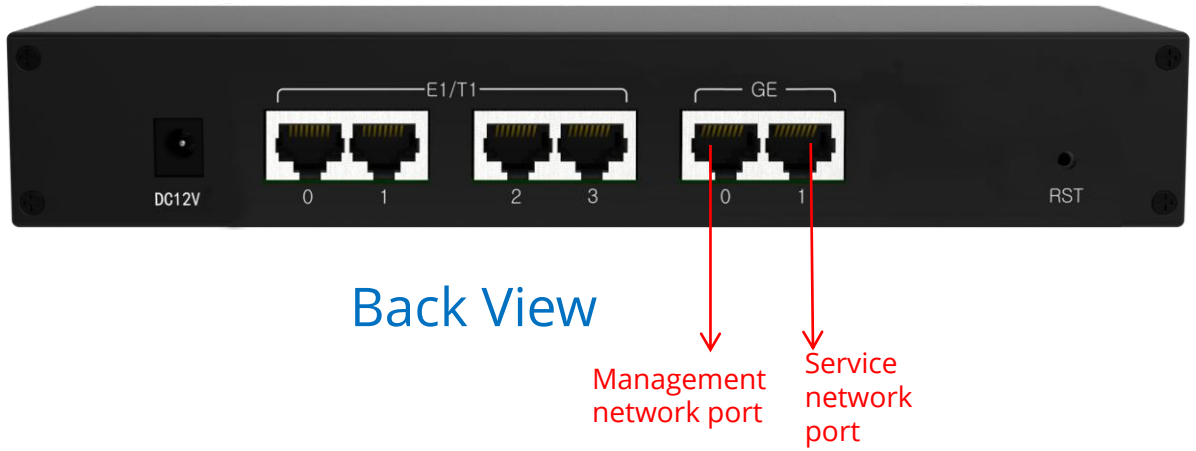
PRI

ss7

T.38 and Pass-through fax



Front View



Back View

MTG1000

- Low Density E1/T1 Digital VoIP Gateway

1/2 ports E1/T1

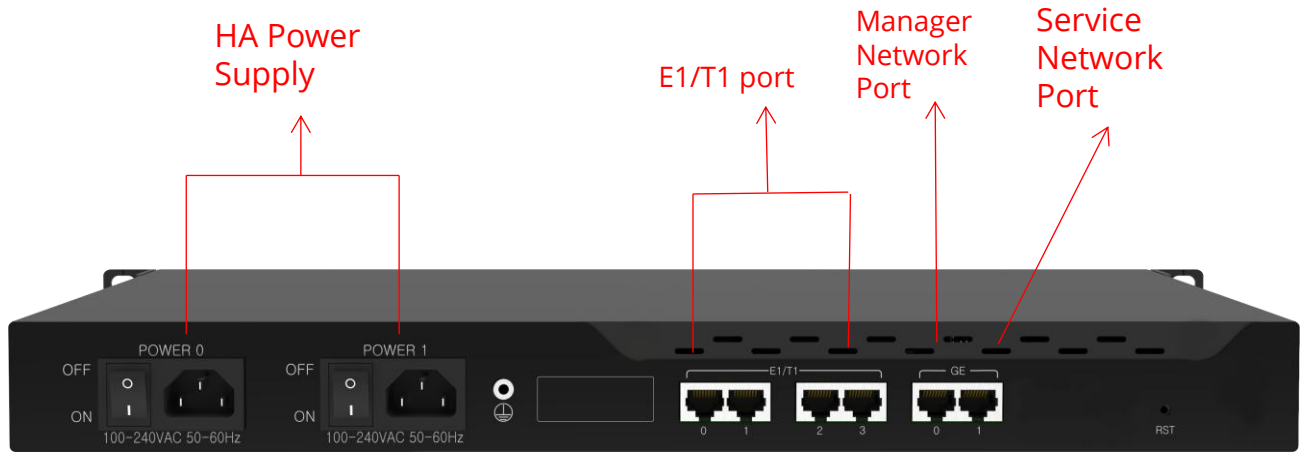
Up to 60 simultaneous calls

Dual Power Supplies

PRI

ss7

T.38 and Pass-through fax



Back View

Front View

Reserved USB

Console

1U chassis

MTG2000

- Carrier-grade Digital VoIP Gateway

4/20 ports E1/T1

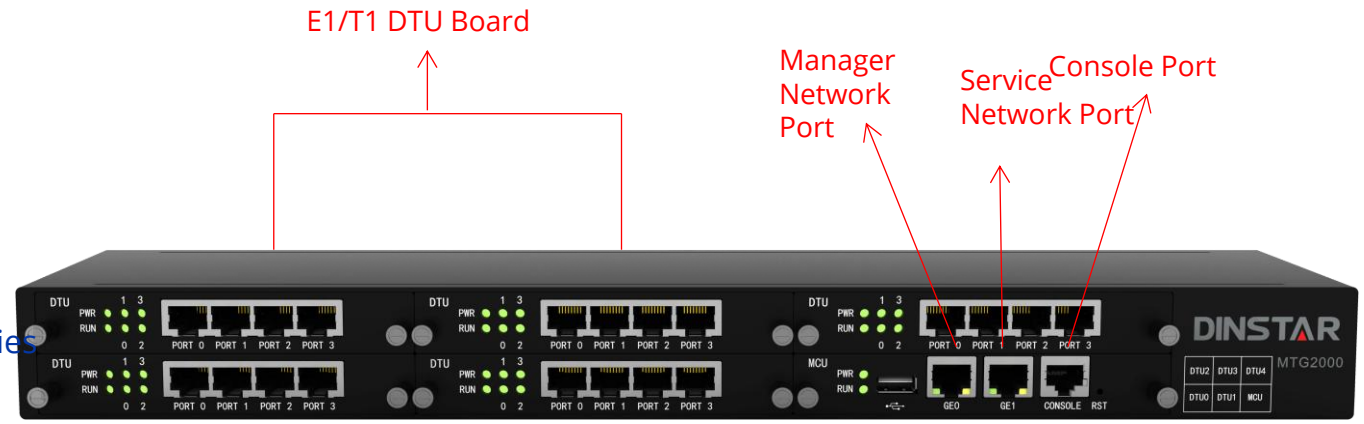
Up to 600 simultaneous calls

Dual Power Supplies

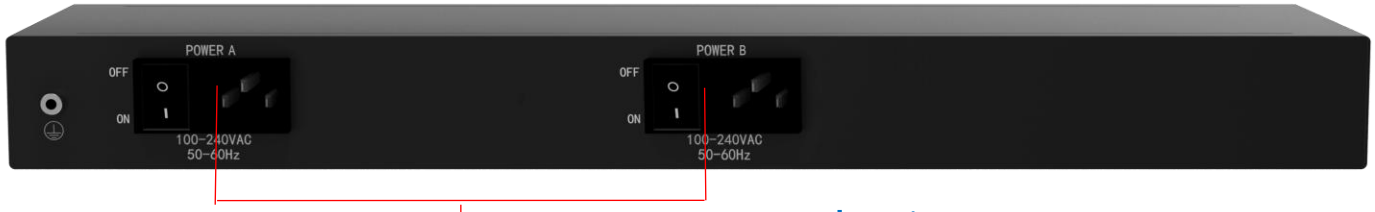
PRI

ss7

T.38 and Pass-through fax



Front View



Back View

MTG2000B

- High Availability Digital VoIP Gateway

4/20 ports E1/T1

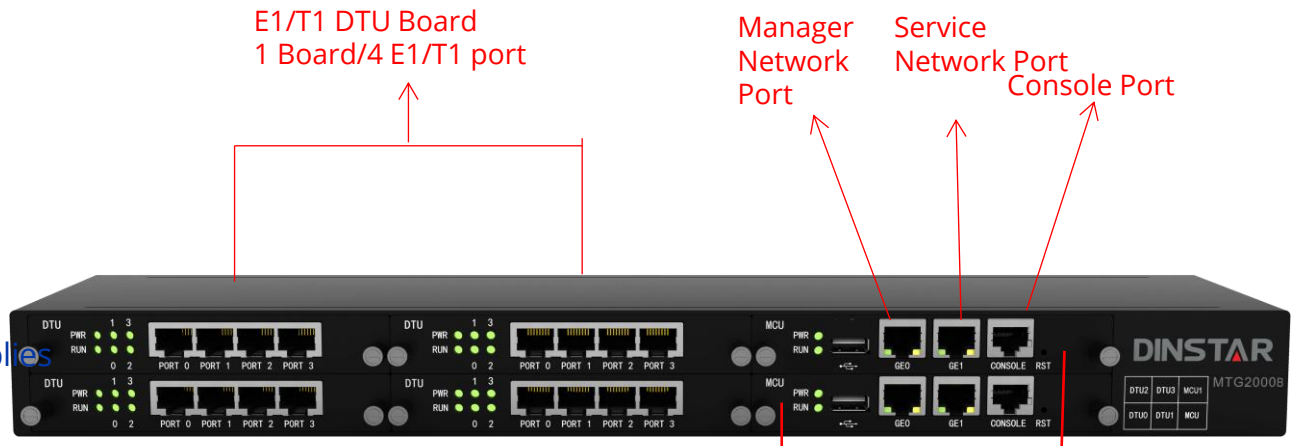
Up to 600 simultaneous calls

Dual Power Supplies

Redundancy Dual MCU

PRI

ss7

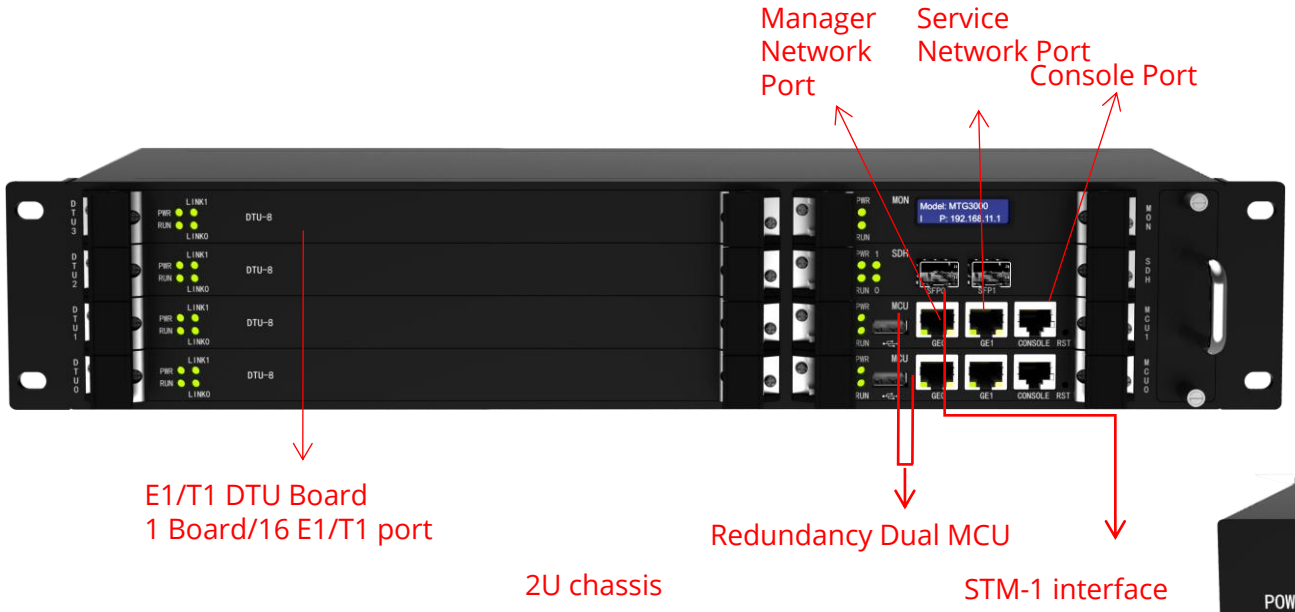


Front View

Back View

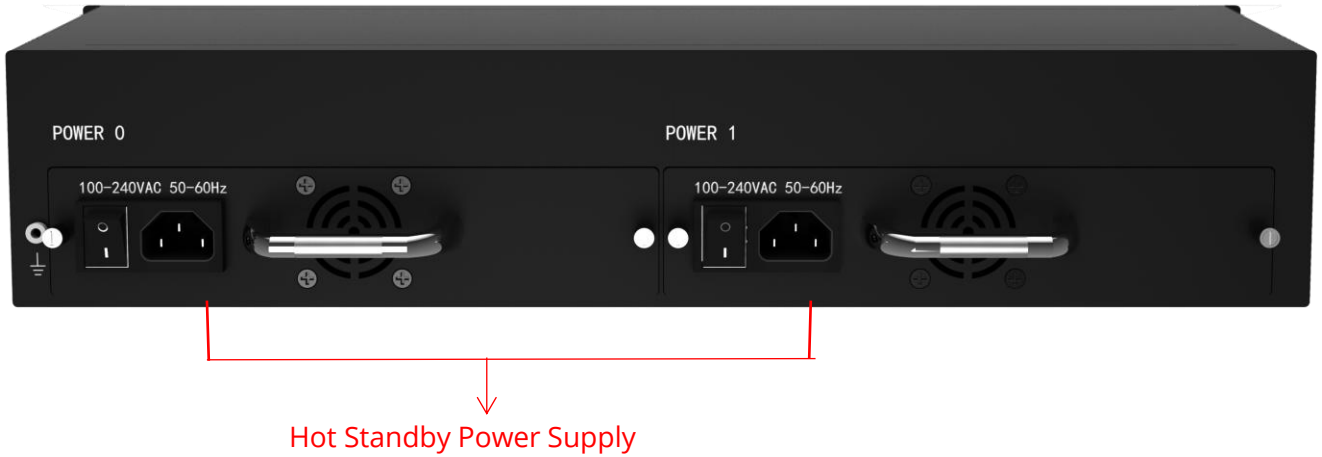
MTG3000

- High Density Digital VoIP Gateway



Front View

Back View



MTG3000

- High Density Digital VoIP Gateway

16/63 ports E1/T1
with STM-1 interface

Up to 1890
simultaneous calls

Dual Power Supplies

HA

Redundancy Dual MCU

PRI

ss7

MTG3000T

- High Density Trancoding Gateway

E1/T1 DTU Board
1 Board/16 E1/T1 port

Manager Network Port

Console Port

Service Network Port

Front View

Back View

Hot Standby Power Supply

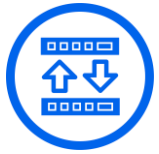
MTG3000T

- High Density Digital VoIP Gateway

16/63 ports E1/T1
with STM-1 interface

Up to 2048
simultaneous calls

Dual Power Supplies



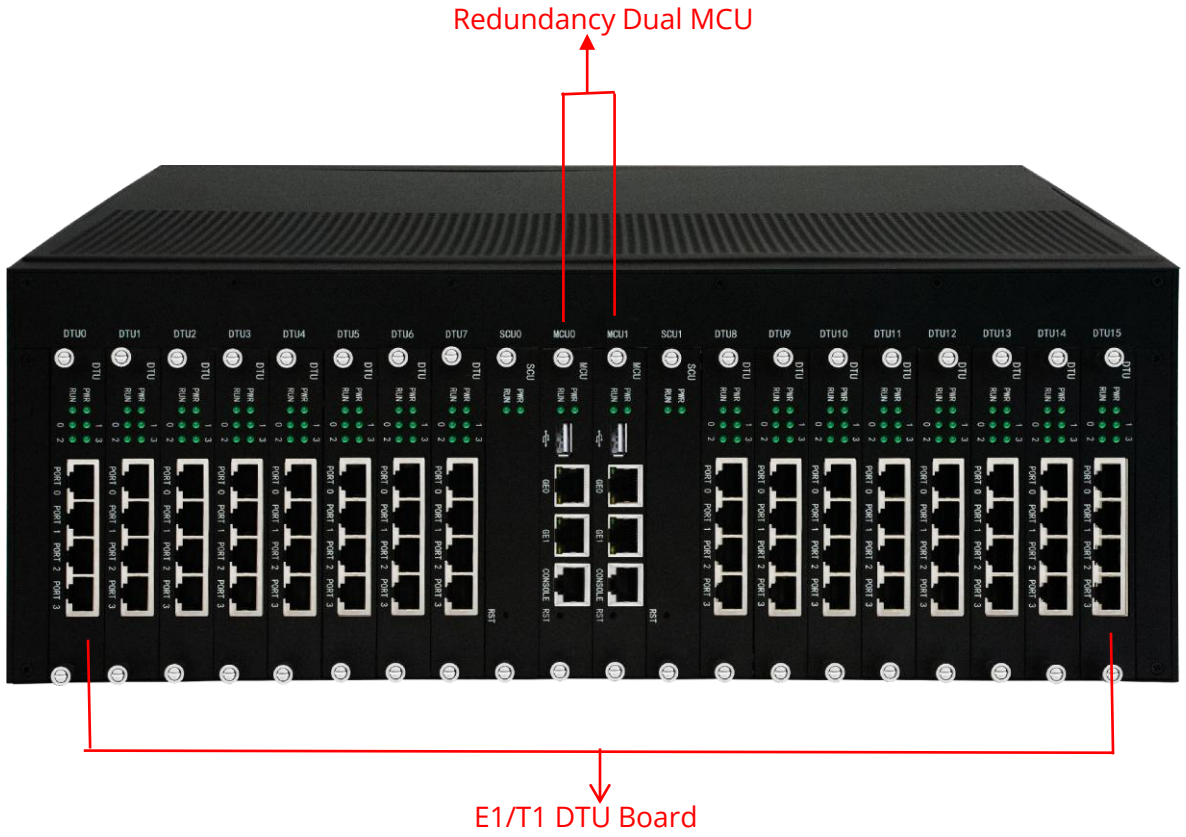
up to 1568
transcoding sessions

PRI

ss7

MTG5000

- High Density Digital VoIP Gateway



Front View

Back View

MTG5000

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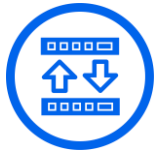
- High Density Digital VoIP Gateway

64 ports E1/T1
with STM-1 interface

Up to 1920
simultaneous calls

Dual Power Supplies



up to 1568
transcoding sessions

PRI

T.38 and Pass-
through fax

Thinking

1. What is the maximum number of E1s supported by each model of MTG series gateway?

- MTG200:2E1
- MTG1000:2E1
- MTG2000:20E1
- MTG3000:63E1
- MTG5000:64E1

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Chapter Three MTG Network And Application

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3.1 MTG E1 to SIP convertor

3.2 MTG SIP to SIP convertor

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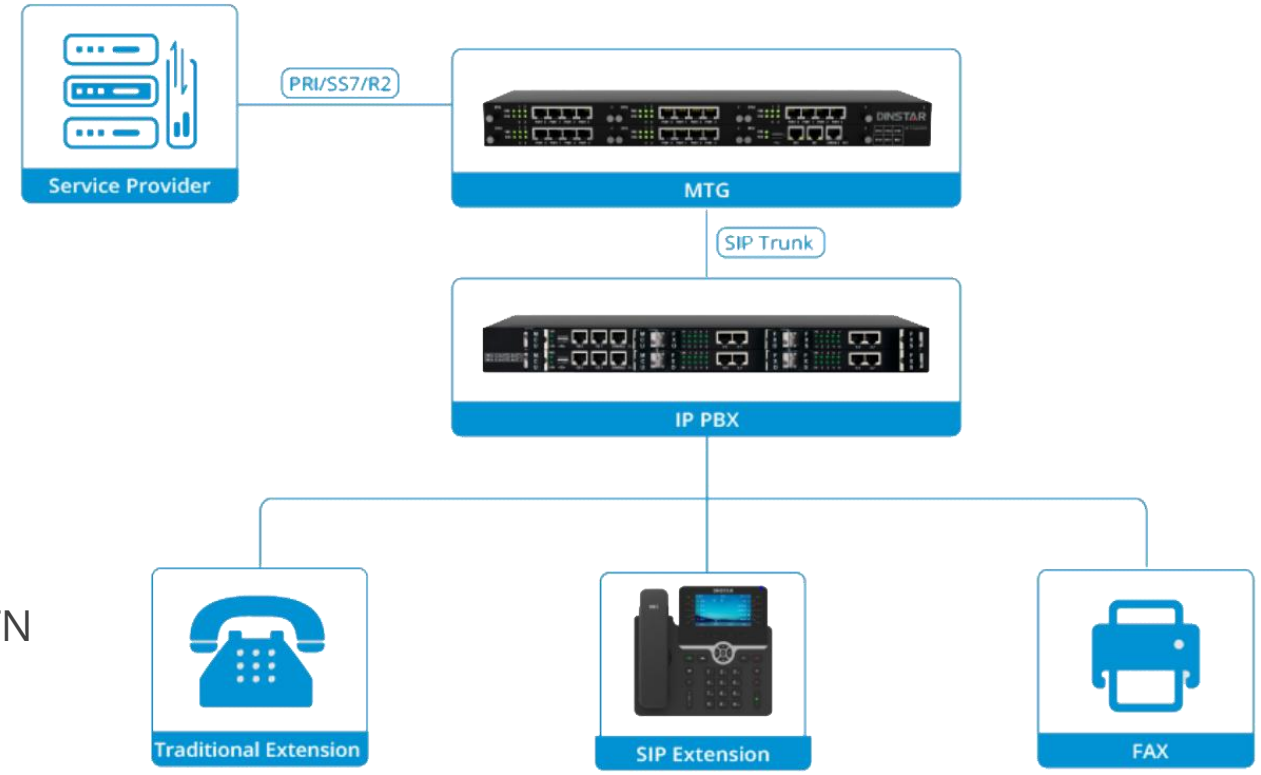
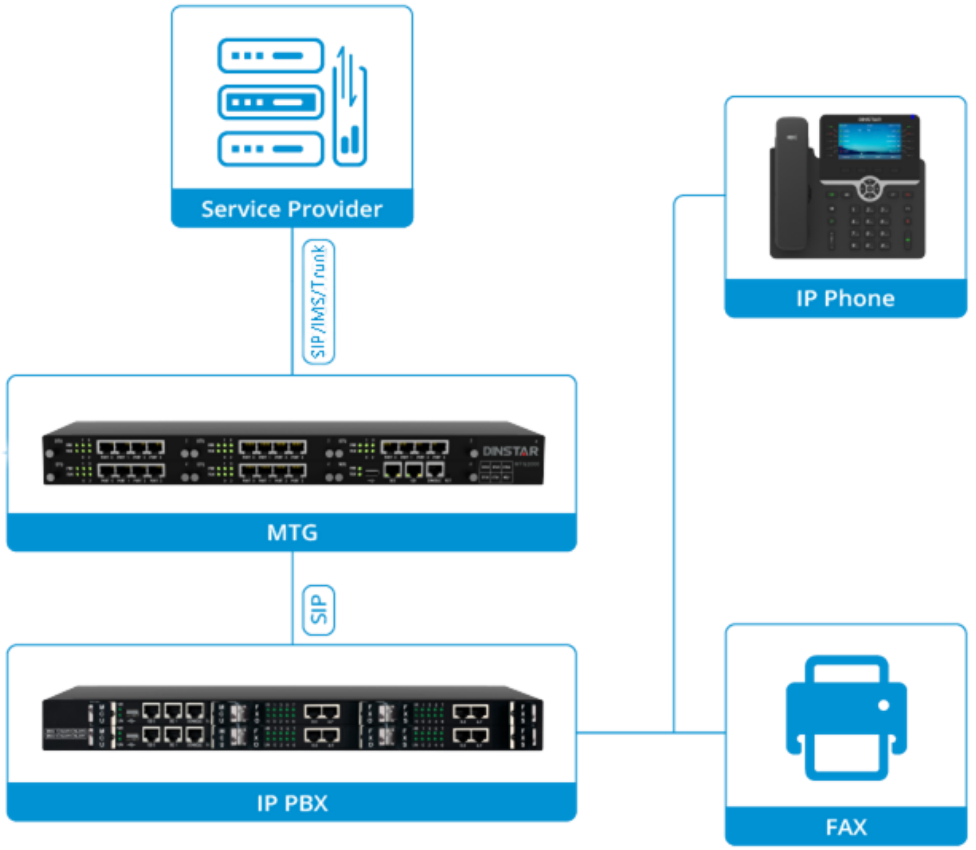
MTG Application Scenarios (1)

- E1 Mode
- Applies to PSTN-MTG-SIP Server
  - MTG gateway it is located in the edge access layer of Voice over IP network, and mainly accomplishes the functions of media stream format conversion and signaling conversion.
  - On the one hand, it realizes the format conversion between PCM signaling stream and IP media stream.
  - On the other hand, it accomplishes the conversion between No.7 signaling/PRI and R2 on the side of PSTN (Public Switched Telephone Network) and packet signaling on the side of IP network.



MTG Application Scenarios (2)

- Transcoding Mode
- Applies to IMS-MTG-IP server
  - SIP-SIP call mode,both sides of the device are docked to the server via SIP trunks, which can be realized by converting media codecs.
  - With high-capacityconcurrency, quick connection, the gateway improves the utilizing efficiency of trucking resources while ensuring.voice quality. It is widely used by call centers, operators and large-size enterprises for the entry into IMS network based on VoIP



MTG E1 to SIP convertor-Configuration Steps

- Notes
  - The gateway should support E1 mode first.
  - if equipment is MTG200/MTG1000/MTG5000 series,connect E1 lines need to meet RJ48 E1 line sequences.if equipment is MTG3000 series connect SDH cable. note: one optical fiber is for receive and another optical fiber is for transmit. do not connect opposite.

Steps are as above

MTG SIP to SIP convertor-Configuration Steps

- Notes
  - MTG needs to support transcoding mode and dual-port mode .
  - If you use two network ports at the same time, docking IMS dedicated line connected to the GE port, IMS proxy address and GE IP address is not in the same network segment, you must add a static route.

Steps are as above

Summary

- This course we already learn:
  - What is MTG and why need MTG
  - MTG main function and key feature
  - Dinstar MTG product knowledge
  - Dinstar MTG application scenario

Abbreviation

- ISDN:Integrated Services Digital Network
- HA:High Availability
- SIP:Session Initiation Protocol
- IMS:IP Multimedia Subsystem
- SS7:Signaling System No. 7
- PRI:Primary Rate Interface
- R2:R2 Signaling

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THANKS

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