



the convergent
service
layer is the future
Telco Network Products

The convergent service layer is the future

Telco Network Products

Networks are gradually evolving from circuit-switched, SS7-based architecture to packet-switched, IMS-based architecture. Completing this transition will take several years, if not more than a decade, or it may never be fully realized. During the transition period, services will have to be provided to both types of networks.

There are two principal service layer strategies during the transition. One strategy is a segmented approach where a parallel service infrastructure is implemented on both networks. The other strategy is a convergent approach where the same service infrastructure is used to provide services to both types of networks.

This paper presents Atos's convergent service layer approach. The same infrastructure provides the same services to both circuit-switched and IMS network domains and the features and capabilities of both network domains may be used in the implementation of the services. The existing core network infrastructure investment is fully leveraged and can be used to provide functionally rich Enterprise and residential product offerings.

Contents

The convergent service layer is the future

Network evolution

Segmented Service Layer
Convergent Service Layer

Smooth transition for IN evolution

Atos' TNP solution

Service Catalogue
Service Offerings

Overview

In yesterday's network, services were provided to subscribers with IN (Intelligent Networks) connected to PSTN and 2G/3G PLMN networks (collectively called Circuit Switched, or CS). Service deployment was rather slow due to proprietary IN implementations and the availability of relatively few suppliers. In today's and tomorrow's networks, services will be provided to subscribers using a so-called Service Layer connected to IMS (IP Multimedia Subsystem) and other PS (Packet Switched) networks. Service deployment will be faster and richer due to new capabilities being defined in the standards and implemented in the networks. However, a migration from CS networks to PS networks will not happen overnight, but rather will take at best several years or decades (if ever) to migrate fully all subscribers to the new technology.

Therefore, in today's evolving transitional networks, services must be provided by a convergent service layer that provides the same services to subscribers whether they connect to a CS (Circuit-Switched) or PS (Packet Switched) network and, even more, a subscriber should be able to use any kind of device at any time transparently independent of the access or switching technology.

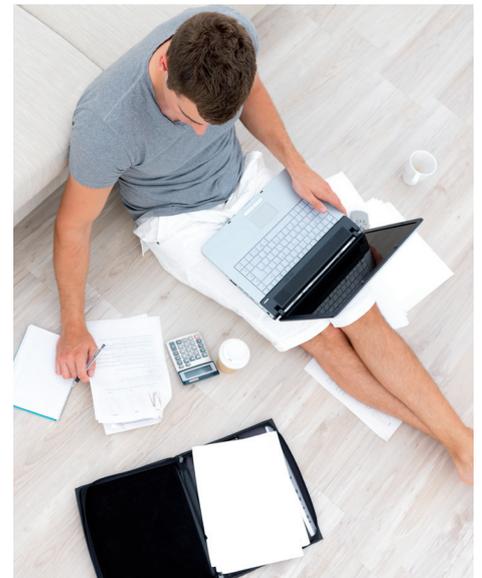
In order for a Service Provider to get started on the transition to an IMS network architecture, the evolution must provide benefits in terms of improved financials such as cost reduction, revenue generation, and increasing subscriber count. The key factors necessary to provide such benefits are:

- ▶ Services can be accessed from either the CS or PS network without maintaining two parallel service layer infrastructures
- ▶ Convergent network adaptation supporting hybrid networks supporting both mobile and SIP devices
- ▶ Rich suite of off-the-shelf services for both Residential and Enterprise segments that provide a new revenue stream, attracting new subscribers as well as increasing usage of by existing subscribers
- ▶ The ability to respond to market demands by deploying new services rapidly

When we speak about convergence, we have to differentiate several types of convergence: service, commercial, and network.

With service convergence, the user experience will be the same independent of the device type used. Mobile, fixed, and SIP phones will behave similarly. For example, a convergent service layer means:

- ▶ Group services such as VPN, friends/family, hunting groups, group pick-up, automatic call distribution, etc. support all device types simultaneously
- ▶ A subscriber can sign up for many services with no restrictions in the combination of services permitted
- ▶ The same profiles for call restrictions and other supplementary services (call forwarding, call holding, call waiting, etc.) apply to all device types
- ▶ A subscriber with several devices has only one voice mailbox
- ▶ Rich services such as Ring-back tones/videos, distinctive ringing, and other personalization features
- ▶ Location, presence, and call status information about all devices is available
- ▶ Multi-service orchestration ensures the correct application of all of the services a user may contract
- ▶ All services are provided by the service layer with no need for customer premises equipment such as PABX's



“In today's evolving transitional networks, services must be provided by a convergent service layer that provides the same services to subscribers whether they connect via a Circuit Switched or Packet Switched network and, even more, a subscriber should be able to use any kind of device at any time transparently independent of the access or switching technology.”

Commercial convergence means the availability of:

- ▶ Multiple-play Bundling for Fixed+Internet+TV+Mobile
- ▶ Special call-type ratings such as Fixed numbers for mobiles, Home or Office Zone types of services, special tariffs for members of group services, and Prepaid-Postpaid convergence

Network convergence means:

- ▶ The same service layer infrastructure is connected to both the CS and PS networks and enables devices connecting from either network to be part of the same services
- ▶ The service layer supports both SS7 TDM and Sigtran on the CS networks
- ▶ CRM, personalisation, provisioning, and billing convergence
- ▶ Multi-Service provisioning orchestration

Finally, a truly convergent platform must have the ability to support the various possible business models that Service Providers need to offer.

- ▶ FMS (Fixed-Mobile Substitution) - In an FMS model, mobile operators replace PABX extensions and fixed-line service with mobile subscriptions and provide PABX features over the mobile network. In this way, an operator gets additional mobile income from the replacement of fixed lines by mobile subscription while the Enterprise reduces the number of suppliers and no longer needs to worry about onsite equipment.
- ▶ FMC (Fixed-Mobile Convergence) - Also known as a total communication provider model, in an FMC model, fixed lines are replaced by IP phones and the IP and mobile extensions are integrated seamlessly. PABX features are delivered by the service layer in a mixed mobile, and IP environment. In this way, an operator provides new convergent services at a competitive price.

- ▶ FMI (Fixed-Mobile Integration) - Also known as business trunking, in an FMI model, the CS/PS PABX's are integrated by connecting them over the IMS network. The service layer is responsible for implementing legal obligations such as emergency calls and lawful intercept. In this way, an operator can integrate the PABX extensions of the Enterprise with the mobile extensions while allowing the Enterprise to amortize current infrastructure.

- ▶ IP/Broadband based residential services - In this model, operators can offer a VoIP/DSL service with the same functionality as the traditional PSTN service. In this way, mobile and fixed operators can enter a new market.

The first three services are oriented towards business subscribers while the last one is oriented towards the residential market.

It is important to stress that for addressing the entire market effectively, a service provider must be able to simultaneously offer products base on FMS, FMC, and FMI strategies.

Enterprise Value Proposition

The Atos TNP - Virtual PBX provides services from the telecom operator network that would normally be provided by customer premises equipment. This allows services to be provided in a convergent way to mobiles, fixed and IP phones. The Enterprises gain the flexibility to move or add offices as well as add or remove phones from the pool. Furthermore CapEx costs are reduced because the CapEx and OpEx are paid within the tariff plan of the Enterprise. For the operator, new high ARPU Enterprise subscribers can be captured. A mobile operator gains fixed line business while a mobile and fixed operator can become a total communications provider.



Network evolution

Networks are evolving from a pure CS architecture through a transitional period until the full IMS packet switched architecture is realized. This transition will last at best several years, if not more than a decade, or may never be fully realized. During the transition period, services will have to be provided to devices that attach from either network. There are two principal service layer strategies during the transition. One strategy is a segmented approach where a parallel infrastructure is implemented on both networks. The other strategy is a convergent approach where the same infrastructure connects to both networks.

Segmented service layer

In a segmented model, the IN SCPs and IMS Application Servers are maintained separately. Eventually, the IN infrastructure will be decommissioned but there will be a period of several years of overlap. A parallel investment must be made and maintained in order to provide the same services on both networks. In addition, a SIP Application Server with no interfaces to the CS network is unable to reuse the existing core network investment and is inadequate for FMS and FMC deployments. Let us discuss the disadvantages of such a segregated approach. First and foremost, a parallel investment must be made and maintained in order to provide the same services on both networks. In addition, a SIP Application Server with no interfaces to the CS network is unable to reuse the existing core network investment and is inadequate for FMS and FMC deployments.

The lack of interaction with the CS core network has many technical deficiencies:

- ▶ Service consistency will require
 - ▶ Dual/parallel development, deployment, and operation of all services
 - ▶ Parallel provisioning and replication of subscriber data
 - ▶ Synchronization of supplementary services settings (call forwardings, etc.) on different network elements

▶ The lack of connection across the network boundary, and hence there will be

- ▶ No dual mode phones
- ▶ No integration of mobile and IP subscription
- ▶ No unique voice mailbox
- ▶ No messaging inter-working

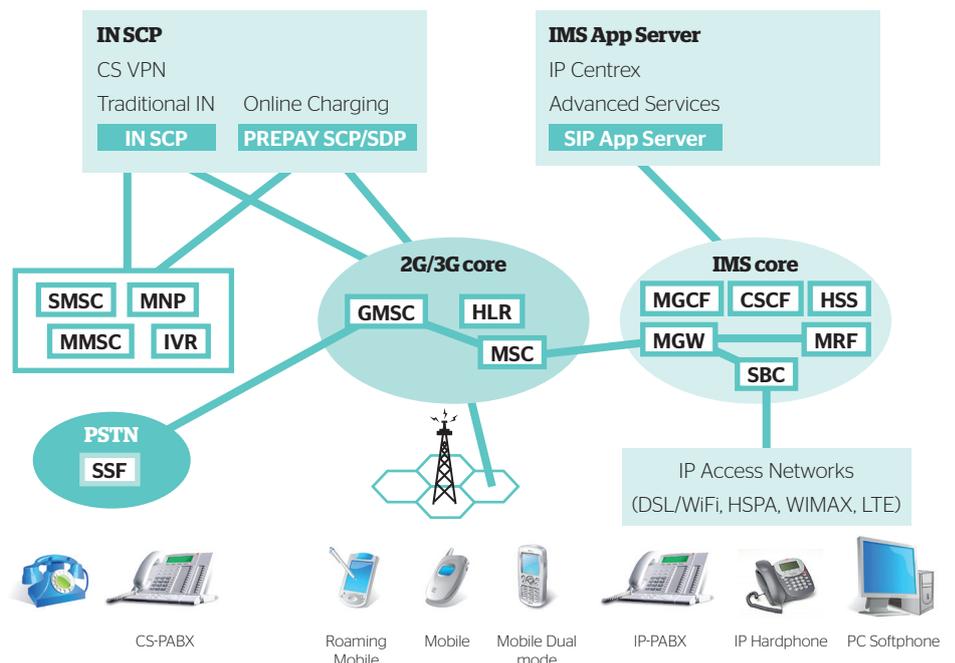
In addition, there are technical deficiencies unique to the SIP application server which will have to be solved in the long run:

- ▶ Inefficient roaming management
- ▶ Lack of location information
- ▶ No access to subscriber data in HLR over CS network
- ▶ Multi-ringing limitations
- ▶ Features oriented to mobiles like Home Zone, Least Cost Routing and Free Divert to Voicemail cannot be implemented
- ▶ Interactions with IN services like Dual-Line and Multi-SIM can not be solved

With a convergent service layer, all of these deficiencies can be overcome and used as advantages.

In this diagram we depict a transitional CS/IMS hybrid network where the IN services and IMS services are maintained on separate service platforms.

Pure players



Convergent service layer

In a convergent model, a single service layer connects to both the CS and IMS networks. The same infrastructure provides the same services to both network domains and the features and capabilities of both network domains may be used in the implementation of the services.

A convergent service layer has none of the deficiencies of the segmented approach, and furthermore provides several advantages. No parallel investment is necessary, but rather only one service layer needs to be maintained. The existing core network infrastructure investment is fully leveraged and can be used to provide functionally rich FMS and FMC deployments.

The connection with the CS core network has many technical advantages:

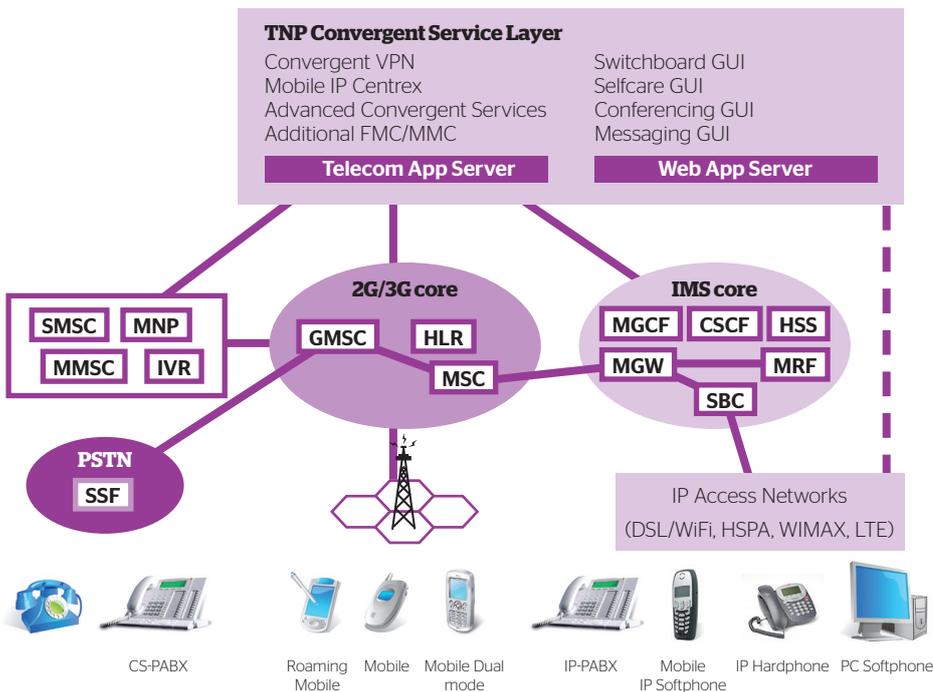
- ▶ Service consistency is provided because there is no dual provisioning or replication of subscriber data, and other configuration parameters such as the supplementary services settings (call forwardings, etc.) are retrieved directly from the source (the HLR).

- ▶ The connection across the network boundary allows
 - ▶ Dual mode phones
 - ▶ Integration of mobile and IP subscription - the so-called "convergent user" concept
 - ▶ Unique voice mailbox
 - ▶ Messaging inter-working
 - ▶ Minimal rerouting between CS and IMS domains
- ▶ Services for devices connecting from the IMS network gain
 - ▶ Efficient roaming management
 - ▶ Location information
 - ▶ Access to subscriber data in HLR over CS network
 - ▶ Multi-ringing abilities
 - ▶ Interactions with IN services like Dual-Line and Multi-SIM are possible

Furthermore, with a leg into both networks, advanced presence and call status features can be implemented which improve the user experience of the convergent user. For example, if a convergent user is talking on the mobile phone, and incoming call will not cause the fixed line phone to ring, but will be diverted directly to the voicemail.



Atos Convergent Service Layer Approach



Here we depict a transitional hybrid CS/IMS network where the IN services and IMS services are provided by a convergent platform.

Benefits of a convergent approach

End users will enjoy:

A Service Provider will enjoy:

End users can have this	Instead of this	Service Providers can have this	Instead of this
Convergent services	"Fixed-only" or "Mobile-only"	Same services over hybrid networks	"CS only" or "IMS only" services
Multimedia telecom services for every service	Voice only	Open standards multi-vendor platforms and services	Proprietary, single-vendor implementations
Multiple device support while taking into account device-specific features	Different services per device type	Multi-market platform adaptable for Corporate, SME, SOHO and Residential segments	Dedicated platforms for business and residential segments
Payment method independent services	Prepaid-only or Postpaid-only subscribers	Open, online IT integration for BSS and OSS	Proprietary offline IT integration
Private and Business service awareness for the same user	Different devices, subscriptions, services, and carriers for the same user	Telecom & Web service/application layer integration	"Telecom-only" and "Web2.0-only" approaches
Flexible phone pool management	Static lock-in		

Smooth transition

Smooth transition for IN revolution

Many operators are facing the end-of-life of their current IN platforms. By adopting a convergent service layer approach, the migration of the IN services of the CS network is facilitated. The transition of the IN services can be divided into two main approaches:

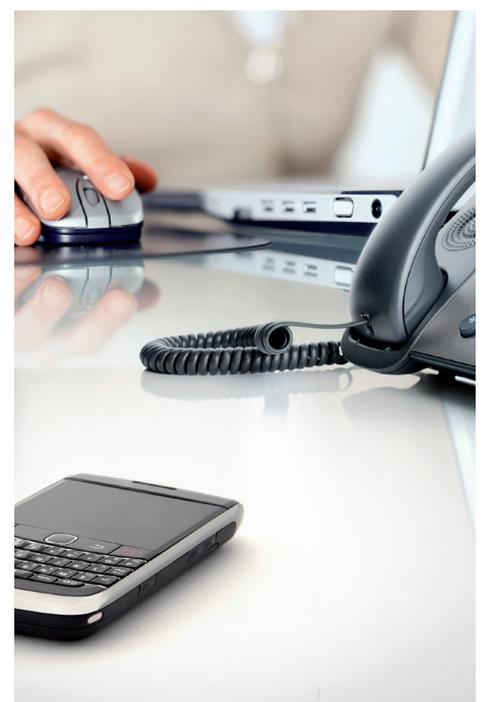
1. Operators with an IMS network deployed or with short term plans for deployment
2. Operators with plans to deploy an IMS network in the medium to long term

In the first case, when an IMS network is in place or will be in the short term, then the IN evolution strategy will consist of deploying a convergent platform along side the existing IN infrastructure. New convergent services will be implemented and offered to the subscribers who want those services, speeding up the IMS pay-off and generating more income. Eventually, when the legacy IN infrastructure is amortized, the pure IN services will be implemented on the convergent platform and

subscriptions will be migrated over from the legacy IN to the new IMS.

In the second case, the operator has medium or long terms plans for an IMS network while the current IN infrastructure is due for a major upgrade or replacement. In this case, the operator should select a convergent service layer platform for the IN replacement. The pure IN services will be implemented on the convergent platform and then the subscribers will be migrated. In this way, when the IMS network is deployed, the service layer is prepared for the immediate introduction of convergent services. In fact, with this strategy, the business case for the IMS deployment will be more attractive and the operator may be able to justify an earlier IMS deployment.

"By adopting a convergent service layer approach, the migration of the legacy IN services to a convergent approach is facilitated."



Service catalogue

Atos' TNP Portfolio

Atos TNP solutions enable telecom operators to become total communications providers, offering convergent voice and data services to mobile, fixed, and SIP devices for enterprise and residential markets. Our TNP products enable the development of truly convergent services that include voice, messaging, presence, location, realtime charging and other features.

Atos TNP make the transition to IMS worthwhile. The investments into IMS pay off sooner because the operators are able to offer attractive new services to their subscribers using the features and capabilities of IMS while continuing to use the 2G/3G infrastructure

already in place. Atos TNP consists of a comprehensive portfolio of products and services. A rough grouping of the services and their main features is shown below.

Products, services and features in the catalogue can be bundled in multiple ways to create Service Offerings to serve the communication needs of your Business customers. These same services can also be leveraged for the Consumer market.

Examples of ready-to-implement Service Offerings provided by Atos TNP are:

- ▶ Enterprise Mobile Centrex

- ▶ Enterprise Convergent Centrex
- ▶ Enterprise Convergent Centrex plus Unified Communications
- ▶ Enterprise Contact Center

All these Service Offerings are powered by the Atos TNP Platform hosted by the operator.

With the TNP - Virtual PBX product, businesses save the capital and operating expenses of purchasing and maintaining PABX equipment or any other additional hardware.

These Service Offerings are also suited to large Enterprises or customers who want or need to keep their existing PBXs, via the TNP PBX Trunking product.

<p>Convergent VPN</p> <ul style="list-style-type: none"> Mobile Support SIP Support Roaming features Private Numbering Plan Closed User Groups Restriction Management Preferential Charging Favorites Partner VPN Private Calls Calendar Company Cost Control Office Zone CLIP No-Screening Multinational VPN 	<p>Group Centrex</p> <ul style="list-style-type: none"> Hunting Chain Hunt Group Call Queuing Group CLI Group Call Pick-Up <p>Front Office</p> <ul style="list-style-type: none"> Switchboard Operator Auto Attendant <p>MS Lync Integration</p> <ul style="list-style-type: none"> MS Lync Endpoints Lync Convergent Users 	<p>Personal Centrex</p> <ul style="list-style-type: none"> Manager- Assistant End User ICS Absence Feature PAS Skipping Multidevice Ring Back When Free Advanced Call Forwarding <p>Add-On Services</p> <ul style="list-style-type: none"> Home Zone / Office Zone Local Diversion Roaming Charging IN front end Multi-SIM (nGSM) SIP Load Balancer 	<p>Unified Comms</p> <ul style="list-style-type: none"> Convergent End User End User Profiles Call Toggle Follow Me Click-to-Dial PC Toolbars Audio Conferencing Selfcare GUI Mobile GUI <p>Presence Enabler</p> <ul style="list-style-type: none"> Mobile Call Status SIP Call Status
<p>SIP Trunking</p> <ul style="list-style-type: none"> PBX Trunking Advanced PBX integration Registered /Unreg. PBX Force on PBX <u>Office Link</u> - Network Resilience - Service Backup - Call Admission Control - Call Deflection 	<p>IP Line Services</p> <ul style="list-style-type: none"> CLIR / CLIP CF, CW, CH, CT, CB, ODB's Emergency Calls Malicious Call Identification Long Call Handling VoIP with Mobile Backup 	<p>Horizontal Features</p> <ul style="list-style-type: none"> On-line Charging Integr. CDR Generation Web Services API Administrator GUI Feature Access Codes Common Address Book Music Repository 	<p>VoLTE Support</p> <ul style="list-style-type: none"> IR.92 and IR.94 support Profile Mgnt (Ut+Sh) SR-VCC T-ADS IN rerouting Charging Trigger Function

Market offerings

Enterprise Mobile Centrex

PABX-like services provided in a hosted mode to mobile users. VPN and Centrex advanced functionalities are available to mobile users.

	Convergent VPN Mobile Support SIP Support Roaming features Private Numbering Plan Closed User Groups Restriction Management Preferential Charging Favorites Partner VPN Private Calls Calendar Company Cost Control Office Zone CLIP No-Screening Multinational VPN	Group Centrex Hunting Chain Hunt Group Call Queuing Group CLI Group Call Pick-Up	Personal Centrex Manager- Assistant End User ICS Absence Feature PAS Skipping Multidevice Ring Back When Free Advanced Call Forwarding	Unified Comms Convergent End User End User Profiles Call Toggle Follow Me Click-to-Dial PC Toolbars Audio Conferencing Selfcare GUI Mobile GUI
	SIP Trunking PBX Trunking Advanced PBX integration Registered /Unreg. PBX Force on PBX Office Link - Network Resilience - Service Backup - Call Admission Control - Call Deflection	Front Office Switchboard Operator Auto Attendant	Add-On Services Home Zone / Office Zone Local Diversion Roaming Charging IN front end Multi-SIM (nGSM) SIP Load Balancer	Presence Enabler Mobile Call Status SIP Call Status
		MS Lync Integration MS Lync Endpoints Lync Convergent Users	IP Line Services CLIR / CLIP CF, CW, CH, CT, CB, ODB's Emergency Calls Malicious Call Identification Long Call Handling VoIP with Mobile Backup	Horizontal Features On-line Charging Integr. CDR Generation Web Services API Administrator GUI Feature Access Codes Common Address Book Music Repository
				VoLTE Support IR.92 and IR.94 support Profile Mgmt (Ut+Sh) SR-VCC T-ADS IN rerouting Charging Trigger Function



Enterprise Convergent Centrex

All types of users in the company (mobile, fixed, users with multiple devices, company PABX) are integrated and receive the same basic and advanced functionalities.

	Convergent VPN Mobile Support SIP Support Roaming features Private Numbering Plan Closed User Groups Restriction Management Preferential Charging Favorites Partner VPN Private Calls Calendar Company Cost Control Office Zone CLIP No-Screening Multinational VPN	Group Centrex Hunting Chain Hunt Group Call Queuing Group CLI Group Call Pick-Up	Personal Centrex Manager- Assistant End User ICS Absence Feature PAS Skipping Multidevice Ring Back When Free Advanced Call Forwarding	Unified Comms Convergent End User End User Profiles Call Toggle Follow Me Click-to-Dial PC Toolbars Audio Conferencing Selfcare GUI Mobile GUI
	SIP Trunking PBX Trunking Advanced PBX integration Registered /Unreg. PBX Force on PBX Office Link - Network Resilience - Service Backup - Call Admission Control - Call Deflection	Front Office Switchboard Operator Auto Attendant	Add-On Services Home Zone / Office Zone Local Diversion Roaming Charging IN front end Multi-SIM (nGSM) SIP Load Balancer	Presence Enabler Mobile Call Status SIP Call Status
		MS Lync Integration MS Lync Endpoints Lync Convergent Users	IP Line Services CLIR / CLIP CF, CW, CH, CT, CB, ODB's Emergency Calls Malicious Call Identification Long Call Handling VoIP with Mobile Backup	Horizontal Features On-line Charging Integr. CDR Generation Web Services API Administrator GUI Feature Access Codes Common Address Book Music Repository
				VoLTE Support IR.92 and IR.94 support Profile Mgmt (Ut+Sh) SR-VCC T-ADS IN rerouting Charging Trigger Function



Market offerings

Enterprise Contact Center

The Enterprise Contact Center consists of the core services needed to provide call center support for an Enterprise. The main application is the Switchboard Operator, which allows a receptionist to manage incoming calls to the company header number, answering and forwarding calls to the right extensions.



Convergent VPN Mobile Support SIP Support Roaming features Private Numbering Plan Closed User Groups Restriction Management Preferential Charging Favorites Partner VPN Private Calls Calendar Company Cost Control Office Zone CLIP No-Screening Multinational VPN	Group Centrex Hunting Chain Hunt Group Call Queuing Group CLI Group Call Pick-Up	Personal Centrex Manager- Assistant End User ICS Absence Feature PAS Skipping Multidevice Ring Back When Free Advanced Call Forwarding	Unified Comms Convergent End User End User Profiles Call Toggle Follow Me Click-to-Dial PC Toolbars Audio Conferencing Selfcare GUI Mobile GUI
SIP Trunking PBX Trunking Advanced PBX Integration Registered /Unreg. PBX Force on PBX Office Link - Network Resilience - Service Backup - Call Admission Control - Call Deflection	Front Office Switchboard Operator Auto Attendant	Add-On Services Home Zone / Office Zone Local Diversion Roaming Charging IN front end Multi-SIM (nGSM) SIP Load Balancer	Presence Enabler Mobile Call Status SIP Call Status
	MS Lync Integration MS Lync Endpoints Lync Convergent Users	Horizontal Features On-line Charging Integr. CDR Generation Web Services API Administrator GUI Feature Access Codes Common Address Book Music Repository	VoLTE Support IR.92 and IR.94 support Profile Mgmt (Ut+Sh) SR-VCC T-ADS IN rerouting Charging Trigger Function
	IP Line Services CLIR / CLIP CF, CW, CH, CT, CB, ODB's Emergency Calls Malicious Call Identification Long Call Handling VoIP with Mobile Backup		

Residential Market

Examples of service offering or bundles for the residential market are:

- ▶ **Convergent User:** A consumer can have the mobile and home landline associated with one subscription. Dual or sequential ringing of the mobile and home phone can be set up.
- ▶ **Home Zone:** A consumer has a geographic number associated with a mobile. Calls can be received or initiated with either number when a subscriber is within a home zone.
- ▶ **Family Group:** An extended family or group of friends can enjoy special tariffs and short number dialing for group members. Particular members of the groups can even be convergent users or home zone subscribers. The family can include the wireline home phone as a member of the Family group. The home phone can be associated with one of the family members (e.g., the mother) as part of a mobile-fixed convergent user, in which case the home phone and related mobile can be set up with dual or sequential ringing and can enjoy a unified voice mailbox. Via the GUI, the parents can configure the children's phones with restrictions for making or receiving calls during school hours or late at night.



Convergent VPN Mobile Support SIP Support Roaming features Private Numbering Plan Closed User Groups Restriction Management Preferential Charging Favorites Partner VPN Private Calls Calendar Company Cost Control Office Zone CLIP No-Screening Multinational VPN	Group Centrex Hunting Chain Hunt Group Call Queuing Group CLI Group Call Pick-Up	Personal Centrex Manager- Assistant End User ICS Absence Feature PAS Skipping Multidevice Ring Back When Free Advanced Call Forwarding	Unified Comms Convergent End User End User Profiles Call Toggle Follow Me Click-to-Dial PC Toolbars Audio Conferencing Selfcare GUI Mobile GUI
SIP Trunking PBX Trunking Advanced PBX Integration Registered /Unreg. PBX Force on PBX Office Link - Network Resilience - Service Backup - Call Admission Control - Call Deflection	Front Office Switchboard Operator Auto Attendant	Add-On Services Home Zone / Office Zone Local Diversion Roaming Charging IN front end Multi-SIM (nGSM) SIP Load Balancer	Presence Enabler Mobile Call Status SIP Call Status
	MS Lync Integration MS Lync Endpoints Lync Convergent Users	Horizontal Features On-line Charging Integr. CDR Generation Web Services API Administrator GUI Feature Access Codes Common Address Book Music Repository	VoLTE Support IR.92 and IR.94 support Profile Mgmt (Ut+Sh) SR-VCC T-ADS IN rerouting Charging Trigger Function
	IP Line Services CLIR / CLIP CF, CW, CH, CT, CB, ODB's Emergency Calls Malicious Call Identification Long Call Handling VoIP with Mobile Backup		

TNP Experience

Atos has been deploying successful TNP projects across Europe since 2004. To date, we count with more than eight reference sites, all in tier-1 European operators. Our customers have used the TNP portfolio to build market offerings for:

- ▶ Enterprise markets using FMS, FMC, and FMI strategies
- ▶ Residential markets
- ▶ Mobile and/or SIP offerings
- ▶ Convergent offerings using FMS or FMC approaches. In some cases their offering began with one or a few services and was built up over time to include a wide range of services packaged into various products. In other cases, a comprehensive Centrex offering was deployed from the beginning. In all cases the TNP was adaptable to needs of the operators and the evolution of their offerings.

About Atos

Atos SE (Societas Europaea) is a leader in digital services with pro forma annual revenue of circa € 12 billion and circa 100,000 employees in 72 countries. Serving a global client base, the Group provides Consulting & Systems Integration services, Managed Services & BPO, Cloud operations, Big Data & Cybersecurity solutions, as well as transactional services through Worldline, the European leader in the payments and transactional services industry. With its deep technology expertise and industry knowledge, the Group works with clients across different business sectors: Defense, Financial Services, Health, Manufacturing, Media, Utilities, Public sector, Retail, Telecommunications, and Transportation.

Atos is focused on business technology that powers progress and helps organizations to create their firm of the future. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and is listed on the Euronext Paris market. Atos operates under the brands Atos, Atos Consulting, Atos Worldgrid, Bull, Canopy, Unify and Worldline.

For more information:
Please contact marketing@atos.net
or visit atos.net/tnp