

# WebSwitch 2000

## Take Your Office Into the Future With Our All-in-one IP Communication Platform



*The WebSwitch 2000 is an all-in-one IP communication platform that opens the borders between the worlds of traditional circuit-switched telephony and next generation packet-based IP telephony. Symmetric and flexible, the WebSwitch 2000 fulfills a variety of business needs that enable enterprises to improve their competitiveness in the new telecoms world.*

Ericsson has combined this flexibility with industry-standard open interfaces to integrate third-party CTI applications and wireless communications right out of the box. Simply put, the WebSwitch 2000 is a feature-rich platform that allows businesses to reap the benefits of converging voice with data and wireless applications onto a single communications infrastructure.

For small to mid-size enterprises that look for a stepwise migration strategy into Voice over IP, and secure their current PBX investments, the various WebSwitch 2000 gateway implementations as Phone Gateway, Extension

Gateway or Trunk Gateway are the answer. These implementation scenarios allow enterprises to experience the numerous benefits of converging business-class telephony over an existing packet-based network while keeping investments to a minimum.

Businesses that open new offices can take advantage of the comprehensive voice services offered with the iPBX/NiPBX application, which fits perfectly into their strategy to create a single IP-based multi-service network catering to all their communications needs.

# Converged Enterprise Communications

## Key Characteristics

The WebSwitch 2000 offers business-class voice services on a real-time operating system, and key features such as Voice Mail, Automated Attendant and Call logging. Also provided are Unified Messaging, CTI and Wireless LAN applications. The D.N.A. Application Suite for the WebSwitch 2000, OneBox™ UM Lite and Phone Manager compliment the WebSwitch 2000 platform to offer a complete voice communications solution. In addition, built-in support for IP telephony offers various levels of interoperability for many H.323 compliant gateways, gatekeepers and IP terminals. Our Java™-based Net Manager application, along with support for SNMP, ensures easy implementation and simplified maintenance of the WebSwitch 2000 in an all-familiar data environment.



## System Description

### WebSwitch 2000 Standard Configuration

A WebSwitch 2000 standard configuration includes the following components:

- WebSwitch 2000
- WebSwitch Net Manager Application
- WebSwitch Phone Manager Application
- Integrated Voice Mail
- Integrated Automated Attendant
- WebLink™ plug-in to support CSTA/ TAPI/TSAPI compliant CTI applications
- Support for standard H.323 compliant gateways and gatekeepers, as well as H.323 compliant terminals and PC-as-phone applications
- Support for multiple languages

### WebSwitch 2000 Configuration Options

The WebSwitch 2000 is available with two (M2) or four (M4) universal slots. These slots may contain a 16-port analog extension card, an 8-port analog or a digital trunk card (supporting ISDN/QSG PRI and BRI, as well as CAS for E1 or T1 markets) in any combination. VPM cards, scalable from 8–32 concurrent IP channels per WebSwitch, can be added to offer VoIP capability.

The WebSwitch 2000 connects to a standard 10/100 Mb IP LAN, where it supports IP packet-based trunk lines and extensions. The product's unique distributed architecture ensures full feature transparency in a WebSwitch cluster. A cluster can contain up to 20 WebSwitches networked on one LAN or a WAN spanning multiple sites. If more capacity is required, additional WebSwitch clusters can be networked via an external gatekeeper using standard H.323 protocols.

### WebSwitch 2000 Add-On Applications

The following optional applications may be integrated with the WebSwitch 2000:

- OneBox UM Lite
- D.N.A. Application Suite for the WebSwitch 2000<sup>1</sup>, consisting of:
  - D.N.A. Directory Manager (DMG)
  - D.N.A. Operator Workstation (OWS)

<sup>1</sup> See data sheet D.N.A. Application Suite for the WebSwitch 2000



WebSwitch 2000 M2



WebSwitch 2000 M4

## Network Management

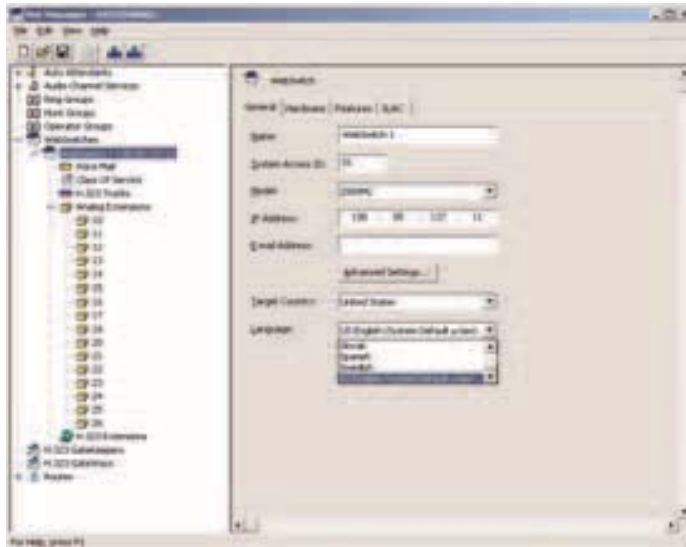
Similar to other network elements, the WebSwitch 2000 is managed through familiar interfaces. Network management can essentially be broken down into 3 key elements:

- Configuration management with the WebSwitch Net Manager application
- Fault management with SNMP, version 2
- Call accounting through the WebSwitch Call Detail Record (CDR) function

A Java-based WebSwitch Net Manager, part of the standard WebSwitch 2000 offering, makes system configuration easy. Administrators can perform network management from any location on the network, either locally or remotely. In addition, the application meets the standards of a variety of platforms, such as Sun Solaris™, Microsoft Windows (2000, ME, NT, XP) and other major operating systems supporting Java.

The SNMP feature provides network administrators with the ability to manage or monitor the WebSwitch through a Network Management Station (NMS) such as HP OpenView or AdventNet Web NMS. It offers a standard MIB2 and a WebSwitch specific MIB, which permits fault management from a NMS with added support for a wide array of alarms and statistics.

Also included with the WebSwitch 2000 is a Call Detail Record (CDR) function that provides network administrators with relevant call information on incoming and outgoing calls, including A-number, B-Number, time, date, duration of a call, codec selection, etc. Information can be stored in a database, where it can be sorted, extracted and eventually exported (e.g. for external billing applications). The default format of CDR data gives organizations essential information to monitor telephony costs and provide call statistics by utilizing any standard third-party call billing/logging application.



### WebSwitch Net Manager Application

The WebSwitch Net Manager application is a tool for network administrators; it is designed to configure and manage one or multiple WebSwitches. Net Manager is flexible insofar that it operates on a variety of platforms, such as Sun Solaris™, Microsoft Windows (2000, ME, NT, XP) and other major operating systems supporting Java.

Net Manager displays WebSwitch system components through a Graphical User Interface (GUI). Configuration specific data is offered in a structured format that is easy to view and understand. Point-and-click interface functions are helpful in guiding administrators through a quick configuration of trunks, extensions and other components. Easier yet, administrators can select multiple extensions and trunks for simultaneous configuration. Also easily orchestrated are downloads of new configurations to one or several WebSwitches, as well as moves, adds, and changes that can be made on or off-line.

In addition, WebSwitch Net Manager facilitates configuration of destination codes, system backups, change of system settings, and retrieval of configuration files from a WebSwitch network.

### WebSwitch Phone Manager Application

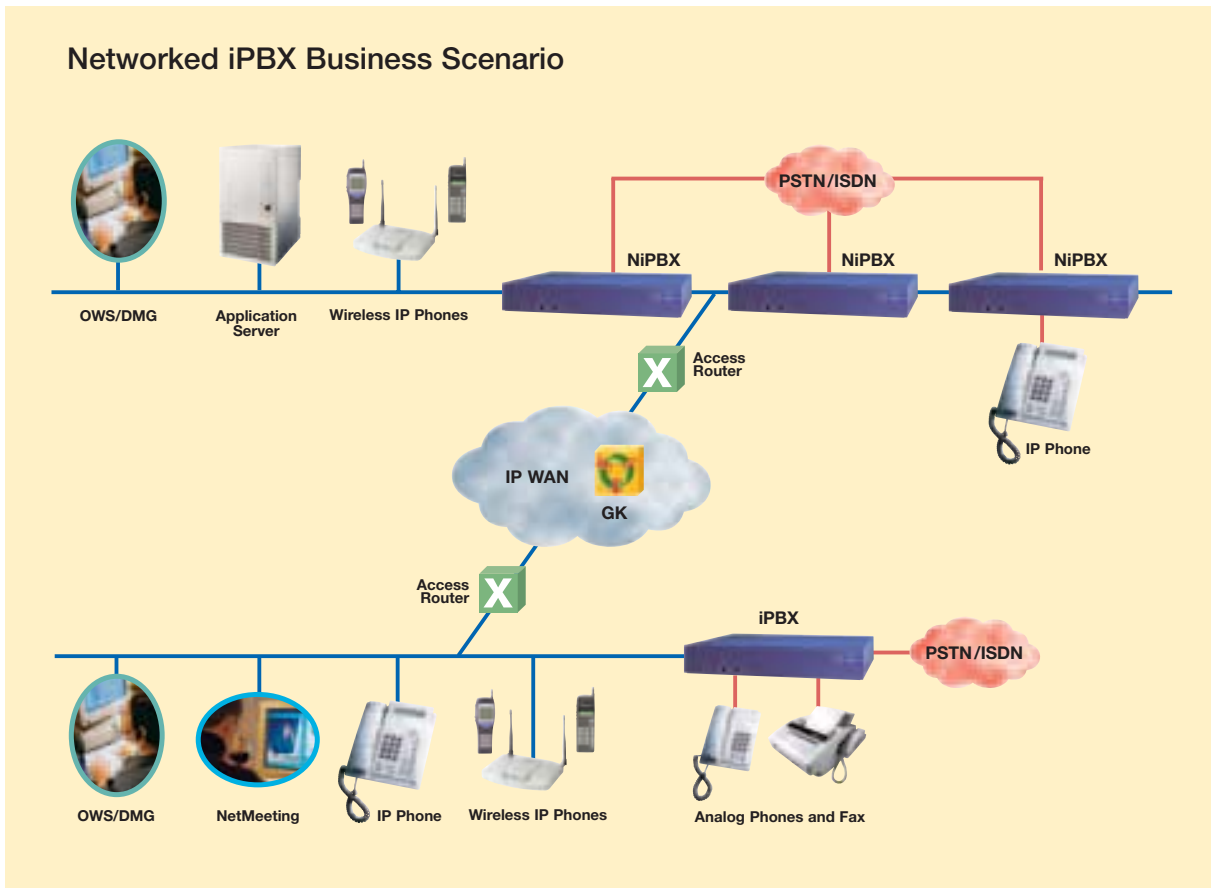
Calls can be placed with a click of a mouse in the WebSwitch Phone Manager application that is part of the standard WebSwitch 2000 solution.

Windows-based, the Phone Manager application brings WebSwitch 2000 telephony to the computer desktop. Users are more flexible and productive by actively managing their telephones' functions through their PCs. Using WebSwitch Phone Manager in combination with an H.323 client, such as Microsoft NetMeeting can eliminate the need for a separate phone altogether. WebSwitch Phone Manager runs on Windows 2000 and ME.

Beyond the basic call control features, Phone Manager offers enhanced functions such as visual voice mail, configurable address books, speed dial, redial, caller ID, call history, call notification and user roaming. Configurable screen view settings can add a customized look to the application, and integration with Symantec ACT!™ and Microsoft™ Outlook® brings additional value to users by simplifying business communications management.



## Networked iPBX Business Scenario



### OneBox UM Lite

Enhancing the voice mail service provided with the WebSwitch 2000, users can now take advantage of OneBox UM Lite, an add-on unified messaging application developed to simplify day-to-day message handling.

Intelligently and intuitively, OneBox UM Lite provides access to and control of your voice mail messages via a user interface embedded in an e-mail. Voice messages may be accessed and managed via the computer desktop from the most popular email clients such as Microsoft<sup>™</sup> Outlook<sup>®</sup> 98, Microsoft Outlook 2000, and Microsoft Outlook Express<sup>®</sup>. Supported features are playback, stop, delete, pause, skip (forward/backward/beginning/end) and volume adjustment.

### Computer Telephone Integration (CTI)

To enhance the support for CTI compliant applications, in addition to the embedded TAPI 2.1 interface for the Phone Manager application, the WebSwitch 2000 includes WebLink, a Windows-based plug-in API service and client DLLs. WebLink ensures seamless integration of CSTA/TSAPI and TAPI compliant applications with the WebSwitch 2000 that include third-party CTI products such as call monitoring or CRM applications.

### D.N.A. Application Suite for the WebSwitch 2000

#### D.N.A. Operator Workstation (OWS)

D.N.A. Operator Workstation (OWS) is the flagship application in the award-winning D.N.A. suite. This easy to use Windows-based attendant console combines powerful operator-specific telephony features with advanced directory and messaging capabilities, enabling operators and receptionists to provide premium customer service.

OWS offers traditional features such as call queues, loop positions, conference calling, and extending of calls, as well as IP-enabled features such as free-seating. The Windows NT 4.0/2000 application works on any standard PC (Pentium III processor required) in combination with an analog telephone.

#### D.N.A. Directory Manager (DMG)

D.N.A. Directory Manager (DMG) works hand in hand with OWS. Besides integrating the directory information from the WebSwitch 2000 into OWS, it allows businesses to manage both internal and external directories containing supplier, partner, and customer information.

DMG features customizable user fields and supports up to 250,000 directory entries. The D.N.A. directory is based on SQL 2000/MSDE 2000 and is compatible with the D.N.A. solutions for the Ericsson MD110 and BusinessPhone PBXs, facilitating simplified integration across networks.

## Features and Services

### WebSwitch 2000

- Alternate Routing
- Advice of Charge (AoC)  
– market dependant
- Audio Channel Service (ACS)
- Auto Attendant (AA)
- Automatic Call Distribution (ACD)
- Call Back on Busy
- Call Conferencing
- Call Detail Record (CDR)
- Call Diversion to Internal and External Numbers
- Caller ID Detection
- Caller ID Display on Extensions
- Call Forwarding Indication
- Call Forwarding on Busy/no Answer
- Call Hold
- Call Pickup
- Call Queuing
- Call Transfer
- Common Dialing Plan
- Destination Codes
- Direct Inward Dialing (DID) Support
- Do Not Disturb (DND)
- Flexible Numbering Plan
- Inquiry
- Internal and External Ring Tones
- Hotline Function for Extensions and Trunks
- Hunt Groups
- Malicious Call Trace –  
market dependant
- Message Waiting Indication
- Music on Hold –  
external equipment required
- Operator Groups
- Paging –  
external equipment required
- Recall
- Remote Trunk Access
- Ring Groups
- Support for Web-based Callers
- Trunk-to-Trunk Routing
- Wireless Access: Supports 802.11 wireless LAN protocols such as Symbol Technologies' Net Vision™ voice and data IP phones

### Integrated Automated Attendant

- Greets incoming callers and allows the transfer of calls to end users via an Interactive Voice Response function
- Breakout to Operator
- Dial by Name
- Dial by Number
- System Greeting
- Multiple greetings per Automated Attendant
- User prompts localized and available in various languages

### Integrated Voice Mail

- 80 hours storage capacity per WebSwitch 2000
- Up to 100 messages may be stored per extension
- 2 personalized greetings per user
- Local and remote voice mail access
- Forward to e-mail client via OneBox UM Lite application
- User defined password protection
- User prompts localized and available in various languages

### H.323 Gateway and Gatekeeper

- Supports H.323 v2
- Supports symmetric configuration of circuit-switched extensions, IP extensions, circuit-switched trunks and IP trunks
- Converts circuit-switched extensions to IP extensions
- Converts IP extensions to circuit-switched interfaces
- Configuration of circuit-switched and IP trunk incoming route access via the Automated Attendant, hotline or DID software settings
- Transit gateway for interconnection with external H.323 gateway or inter-working with external H.323 gatekeepers
- Terminating gateway for extension access via E.164 or IP address
- Gateway for incoming web-based callers ("click-to-call" applications)
- Gatekeeper registration for H.323 wireless and wired IP terminals
- Support for primary and secondary gatekeeper



## Features and Services Continued

### CTI

- TAPI 2.1 interface
- Caller ID support (where available)
- Compatible with the D.N.A. Application Suite for the WebSwitch 2000 consisting of Operator Workstation (OWS) and Directory Manager (DMG)
- Compatible with TAPI 2.1 compliant applications, such as Microsoft Outlook and Symantec ACT!
- WebLink for Windows 2000 and Windows NT 4.0 (service pack 6 or greater) plug-in, supporting external applications such as CSTA server and TSAPI and TAPI clients
- Visual Voice Mail function allows callers using Phone Manager to view and manipulate list of voice mail messages directly from a PC. The list includes time and day of call, caller ID, length of message, etc.

### Unified Messaging

- OneBox UM Lite, part of Ericsson's Unified Messaging application suite, supporting Microsoft Outlook and Outlook Express
- Supports standard POP3 protocols



## Network Management

### Configuration Management

- WebSwitch Net Manager application
- Java-based intuitive GUI for ease-of-use
- Simplified network administration

### Fault Management

- Embedded SNMP v2 support
- Standard MIB2 and WebSwitch specific MIB
- Standards-based monitoring of alarms and statistics
- Integrates into any SNMP management client (e.g. HP OpenView)

### Accounting Management

- CDR function embedded in the system
- Provides accounting and billing information in standard format
- Easy to use command interface for effortless handling
- Data compatible with most third-party call accounting/logging applications

## Specifications

### System Capacity

Maximum Software Capacity per WebSwitch 2000 (depends on configuration)

- Up to 128 extensions (IP and analog combined)
- Up to 76 trunks (IP, analog and digital combined)

### Maximum Hardware Capacity

WebSwitch 2000 (M2) supports in any combination:

- 2 analog extension cards (32 extensions)
- 2 analog trunk cards (16 trunks)
- 1 or 2 E1 digital trunk card(s)
- 1 or 2 T1 digital trunk card(s)
- 8 – 32 concurrent VoIP channels (depending on the configuration)

WebSwitch 2000 (M4) supports in any combination:

- 4 analog extension cards (64 extensions)
- 4 analog trunk cards (32 trunks)
- 1 or 2 E1 digital trunk card(s)
- 1 or 2 T1 digital trunk card(s)
- 8-32 concurrent VoIP channels (depending on the configuration)

### Line Interfaces Network Side

#### Analog

- 8-port analog trunk/CO card (modular RJ-11)

#### Digital

- BRI digital trunk card (100 Ohm balanced RJ-45) 196 Kbps, 2B+D ETSI 3000.012 ITU-T compliant
- E1 digital trunk card (75 Ohm unbalanced BNC, 120 Ohm balanced RJ-45) – 2.048 Mbps according to ITU recommendations G.703/G.704/G.732
- E1 master and slave clocking
- T1 digital trunk card (100 Ohm balanced Bantam, 100 Ohm balanced RJ-45) – 1.544 Mbps according to ITU recommendations G.703/G.704/G.733
- T1 master and slave clocking

#### IP Packet Based

- Virtual IP trunk support for networking with a gatekeeper, interconnecting with a gateway, and for public IP terminals

## Line Interfaces User Side

### Analog

- 16-port analog extension card (50-pin telco connector) for analog telephones, fax and modems

### IP Packet Based

- Virtual IP extension support for wired/wireless IP extensions (such as Symbol Technologies' wireless voice and data IP telephones [IEEE 802.11], Ericsson's Dialog 3413 IP telephone, Microsoft NetMeeting PC-as-phone application, and WebSwitch 100 or 2000 Phone Gateway application)

## Protocols

### Network Signaling Protocols and Standards Supported

- Loop Start (short/long loop) /DTMF
- Basic Rate ISDN/QSIG (network and user interface)
- E1/ISDN/QSIG PRI (network and user interface)
- E1/R2-CAS/DTMF
- E1/R2-CAS/EL7
- T1/ISDN PRI (network and user interface)
- T1/RBS/DTMF
- T1/CAS/EL7

### Network Interface Protocols (LAN)

- H.323 v2 (TIPHON/iNOW)
- IP (UDP, TCP, RTP, etc.)
- Telnet
- TFTP

Provides Layer 2 and Layer 3 support for Quality of Service (QoS):

- Layer 2: IEEE 802.1D/802.1P/802.1Q layer 2 Class of Service (CoS) priority tagging
- Layer 3: RFC-791 Internet Protocol Type of Service (ToS) and RFC-2474 Differentiated Services Field (DS Field)

## H.323 Protocols

- H.323 v2, H.225, H.245
- G.711, G.723.1, G.729ab and GSM EFR coding support
- G.168 echo cancellation
- Adaptive Voice Activity Detection (VAD) for silence suppression
- Adaptive Comfort Noise Generation (CNG)

## Hardware Specifications

### Connections

- 10/100Base-T Ethernet network connection (RJ-45) with LED indicators
- Serial communication port (DB-9 connector) for basic set-up
- Audio-in port for music on hold (3.5 mm phone jack)
- Audio-out port for paging system (3.5 mm phone jack)

### Dimensions

(W x D x H in inches and cm)

- WebSwitch 2000 M2: 17.13in x 14.40 in x 1.85in 43.5cm x 36.6cm x 4.7cm
- WebSwitch 2000 M4: 17.13in x 14.40in x 2.95in 43.5cm x 36.6cm x 7.5cm

### Weight

- WebSwitch 2000 M2: 9 lbs (4kg)
- WebSwitch 2000 M4: 11 lbs (5kg)

### Power

- Input 100-240 V AC ( $\pm 10\%$ )
- Frequency 50-60 Hz ( $\pm 10\%$ )
- WebSwitch 2000 M2: Max. power consumption 80 VA
- WebSwitch 2000 M4: Max. power consumption 130VA

## Operating Requirements

- Operating Temperature 41-120°F (5-49°C)

- Storage Temperature 32-158°F (0-70°C)
- Humidity 10-90% (non-condensing)

## System Requirements

Minimum System Requirements for Net Manager and Phone Manager applications

- Pentium® III processor
- 64 MB RAM
- 100 MB of available HDD space

## Regulatory Approvals

### Product Safety

- CE (EN60950) and ETL listing
- (UL standard 1950 and CSA standard C22.2 #950)
- AS/NZ 3260
- IEC 950 (CB Scheme Test Report)

### Emissions

- CE CISPR22/EN55022 class B and FCC part 15 class B
- ICES-003 class B
- AS/NZ 3548 class B

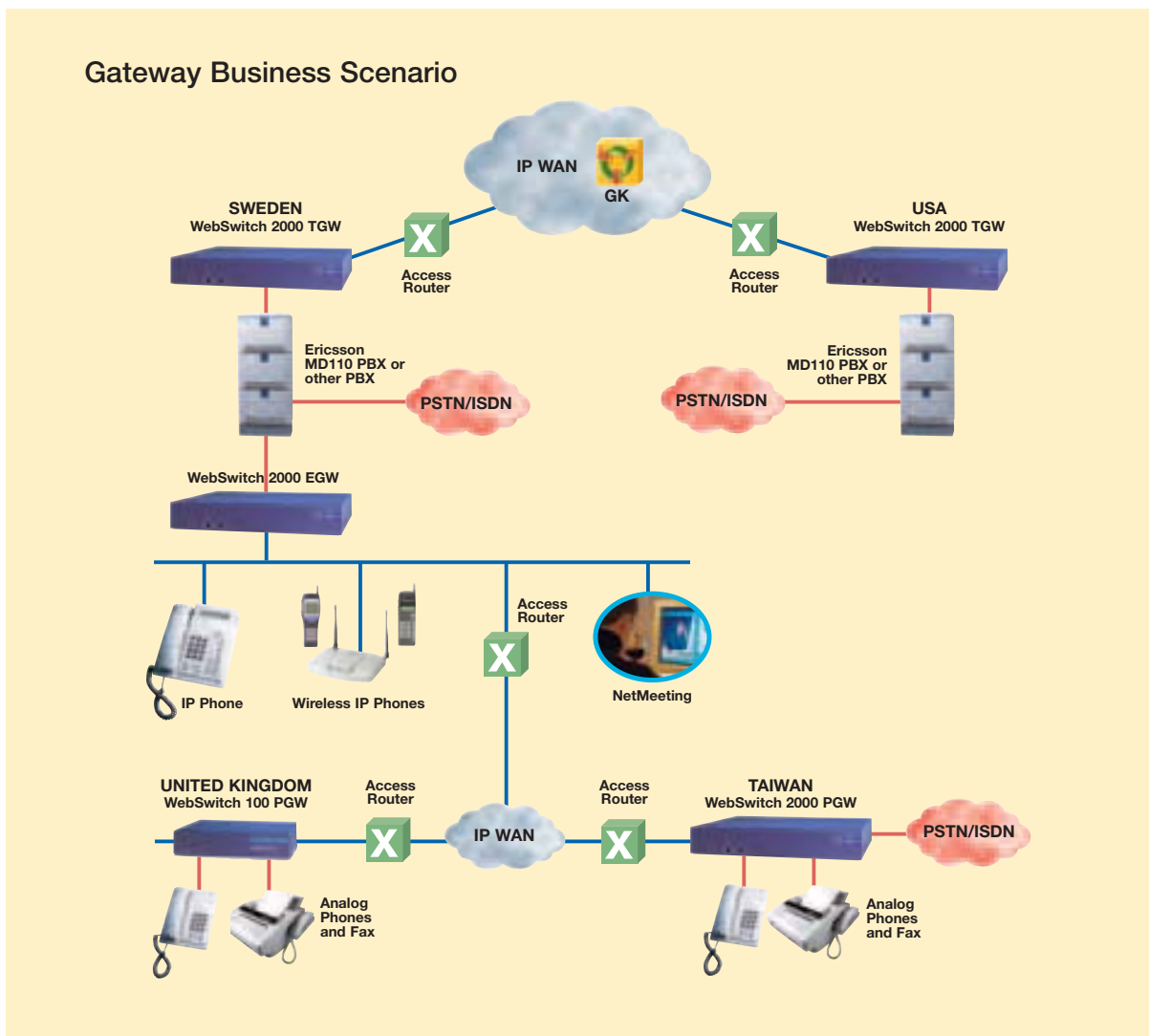
### Immunity

- EN55024

## Network Attachment

- Analog trunk CO2008ME: FCC part 68, CS-03, TBR-21, JATE, TS002/3/4
- E1 digital trunk DL2030: TBR 12 and 13, ACA TS016 2048 Kbit/s, IDA TS DLCN 1, JATE (Green Book) G.703/G.704
- T1 digital trunk DL2024: FCC part 68, CS-03, JATE (Green Book) G.703/G.704
- ISDN PRI E1: TBR4, TS038 and ISDN2
- ISDN PRI T1: FCC part 68 and CS-03
- ISDN BRI: TBR3, TE-1

## Gateway Business Scenario



Software release version 3.1

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