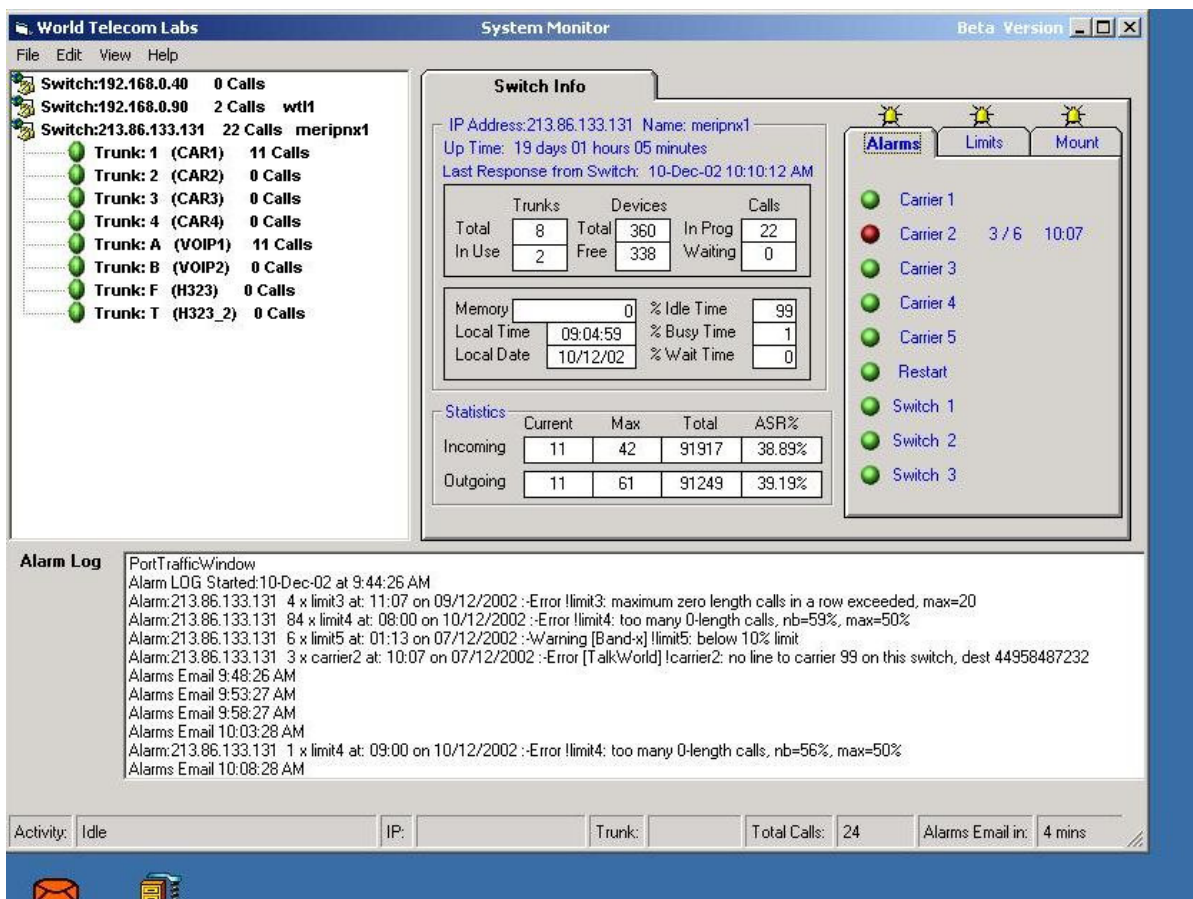


## Managing your network – *SW Monitor*

Running a telecoms network relies on accurate, up to date information. All relevant data must be displayed in easy to understand ways. *SW Monitor* from World Telecom Labs does this by monitoring the health and operation of any number of our switches.

- Graphical display of switches and trunks
- Simple colour coding to indicate alarms received
- Ability to view recent alarms
- Choose which switches to monitor and how frequently
- Instant view of total calls, calls & ASR per switch and calls per trunk
- Emails sent if certain events occur

Marketing Information



**World Telecom Labs System Monitor** (Beta Version)

**Switch Info**

IP Address: 213.86.133.131 Name: meripnx1  
 Up Time: 19 days 01 hours 05 minutes  
 Last Response from Switch: 10-Dec-02 10:10:12 AM

Trunks		Devices		Calls	
Total	8	Total	360	In Prog	22
In Use	2	Free	338	Waiting	0

Memory	0	% Idle Time	99
Local Time	09:04:59	% Busy Time	1
Local Date	10/12/02	% Wait Time	0

**Statistics**

	Current	Max	Total	ASR%
Incoming	11	42	91917	38.89%
Outgoing	11	61	91249	39.19%

**Alarms** Limits Mount

- Carrier 1
- Carrier 2 3 / 6 10:07
- Carrier 3
- Carrier 4
- Carrier 5
- Restart
- Switch 1
- Switch 2
- Switch 3

**Alarm Log**

PortTrafficWindow  
 Alarm LOG Started: 10-Dec-02 at 9:44:26 AM  
 Alarm: 213.86.133.131 4 x limit3 at: 11:07 on 09/12/2002 :-Error limit3: maximum zero length calls in a row exceeded, max=20  
 Alarm: 213.86.133.131 84 x limit4 at: 08:00 on 10/12/2002 :-Error limit4: too many 0-length calls, nb=59%, max=50%  
 Alarm: 213.86.133.131 6 x limit5 at: 01:13 on 07/12/2002 :-Warning [Band-x] limit5: below 10% limit  
 Alarm: 213.86.133.131 3 x carrier2 at: 10:07 on 07/12/2002 :-Error [Talk-World] !carrier2: no line to carrier 99 on this switch, dest 44958487232  
 Alarms Email 9:48:26 AM  
 Alarms Email 9:53:27 AM  
 Alarms Email 9:58:27 AM  
 Alarms Email 10:03:28 AM  
 Alarm: 213.86.133.131 1 x limit4 at: 09:00 on 10/12/2002 :-Error limit4: too many 0-length calls, nb=56%, max=50%  
 Alarms Email 10:08:28 AM

Activity: Idle IP: Trunk: Total Calls: 24 Alarms Email in: 4 mins

### Status Display

A tree view is used to show the current status of all switches currently being monitored. The top level shows the name, IP address and number of current open calls of each switch. A coloured icon is used for each switch to indicate if there are any outstanding alarms. The tree view can be expanded to give information on each trunk in a switch. Each

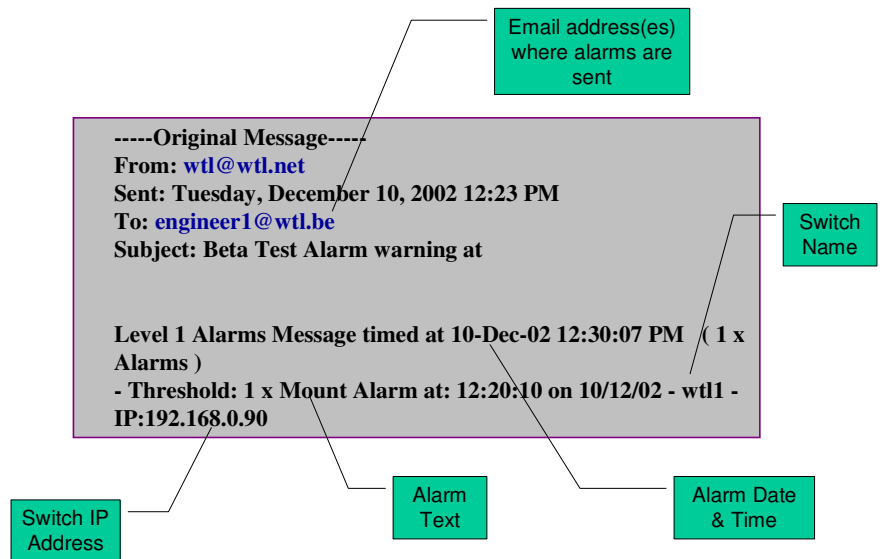
Changing the Way the World Communicates .....

trunk can be named (for example with the carrier's name) and the current number of open calls is shown. Again the trunk is colour coded to highlight errors.

## Sophisticated Email-based reporting

*SW Monitor* is also designed for unattended operation. There is a highly configurable system of email-based reporting.

- Configurable limits before emails are sent
- Different action rules for day and night (so emails can be sent when engineers off-duty)
- Multiple engineers' email addresses can be included
- Different alarm levels trigger emails to different people (for example, only send major alarms to manager)



## Alarms & Limits

Alarms are generated for a variety of network and switch events. A number of these can be set to generate alarms at configurable thresholds.

Switch events	Network events	Other
Processor activity too high	Level 1 errors	Number of zero length calls per hour
Disk capacity running out	Line timeouts	Bad PINs
Lack of memory available	Carrier full	Balance exhausted
CDR Directory getting full	Trunk idle for too long	Too many users on one account

The most recent alarms are displayed in a scrollable window. These alarms are held by the switch until they are acknowledged by the user so that alarm messages cannot be lost even when the PC is turned off.

## Underlying Technology

*SW Monitor* uses a Microsoft Access database and therefore requires Office Professional. The email service uses SMTP. Communication with the switches is via an IP connection (local or remote). This may be a permanent or a dial-up connection, private or via the internet.

*SW Monitor* reports on all types of WTL switches: IPNx, PVx and INx.