

# Potevio

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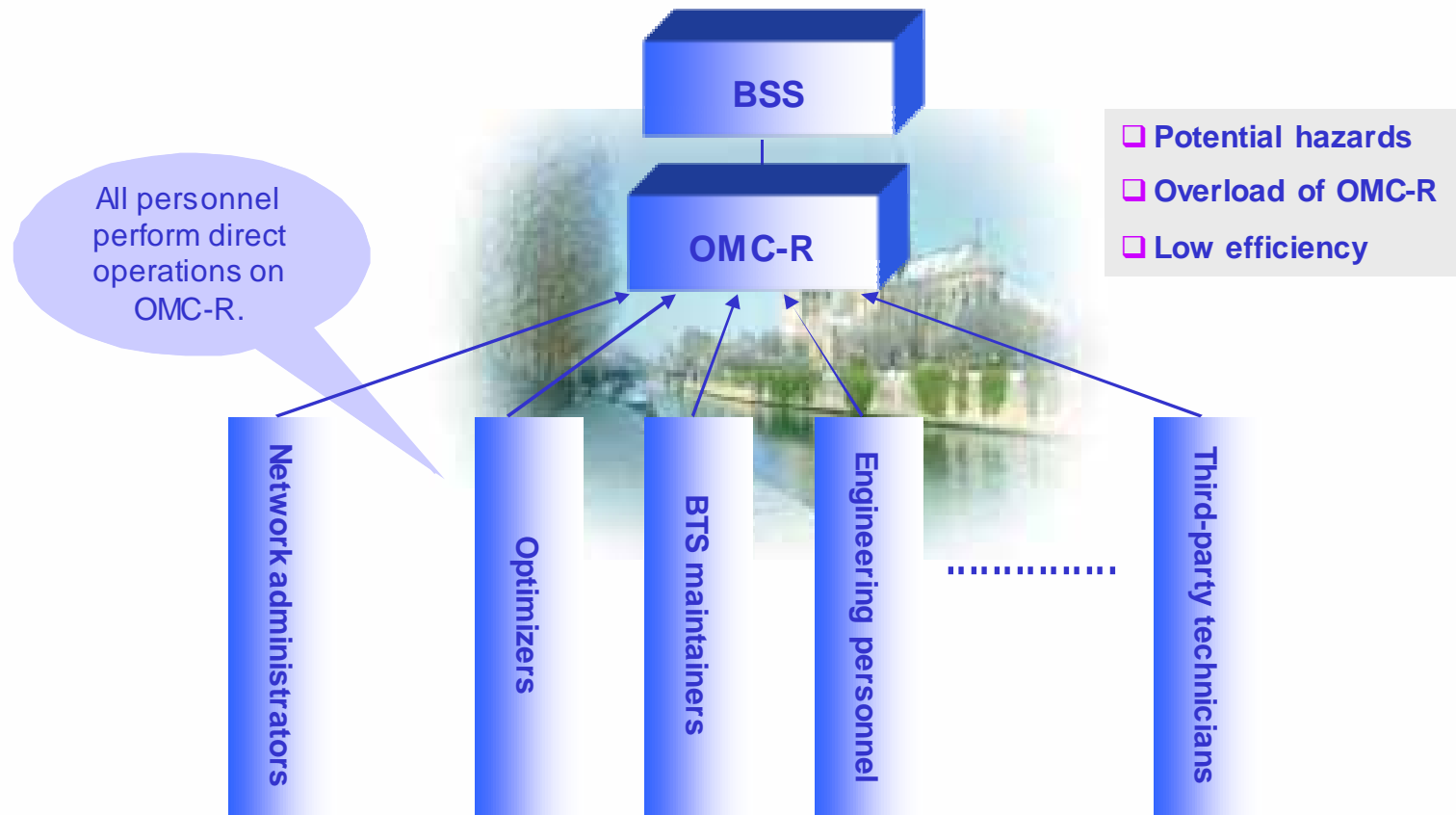
# Network Performance and Equipment Analysis Management System **PMS / EMS**

**PMS: Performance Management System**

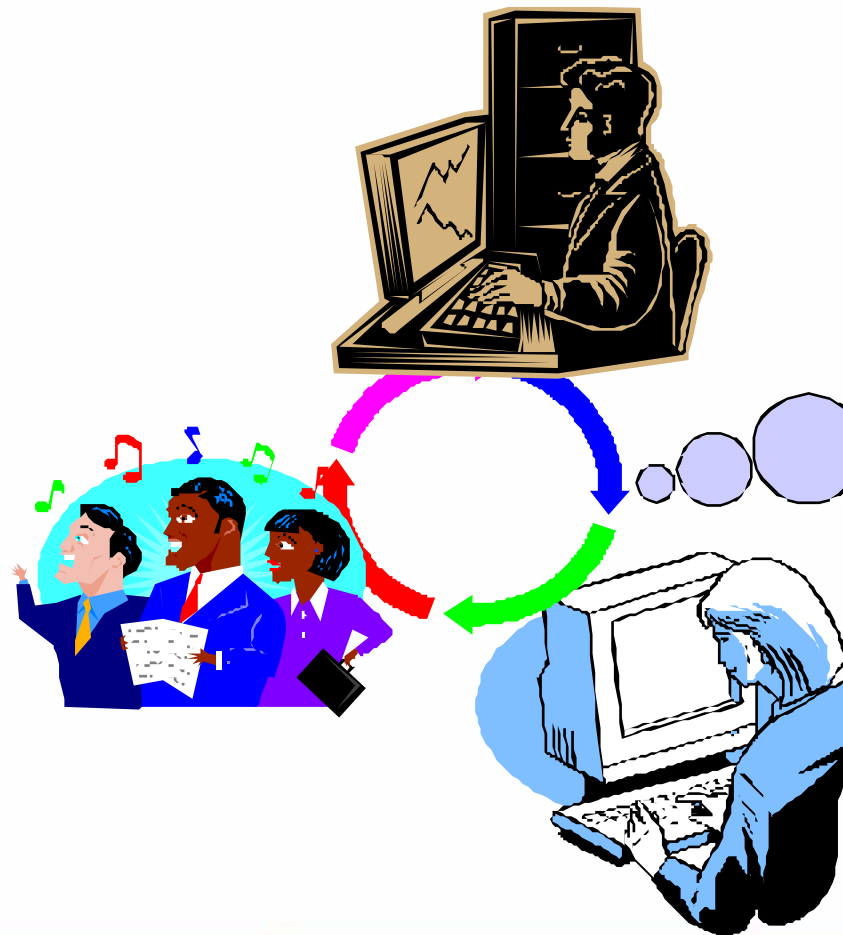
**EMS: Event Management System**

- ④ **Current situation of network maintenance and management**
- ④ One of the solutions: PMS/EMS
- ④ Overview of PMS/EMS
- ④ PMS/EMS functional modules
- ④ Case study
- ④ Summary

# Modern Network Operation and Maintenance



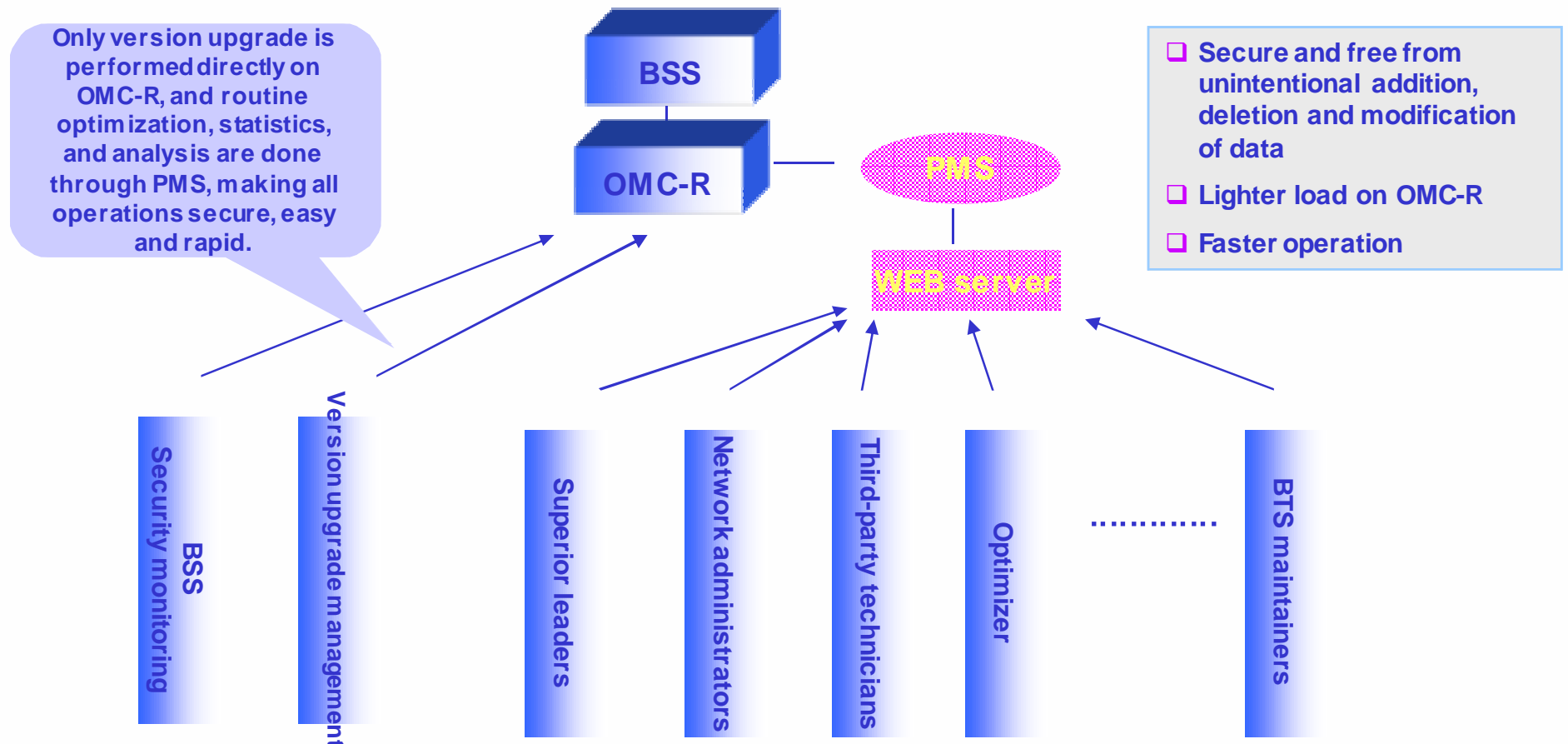
## Monitoring of network performance in the past



The small number of OMC-R terminals forced the network administrators, maintainers, optimizers to scramble for these terminals, thus affecting the work efficiency. The department leaders found it difficult to obtain first-hand information on network performance and maintenance.

- Current situation of network maintenance and management
- **One of the solutions: PMS/EMS**
- Overview of PMS/EMS
- PMS/EMS functional modules
- Case study
- Summary

# Introduction to PMS



**The integrated analysis system for the wireless network is compatible with the interfaces of many manufacturers (MOTOROLA/NOKIA/ERICSSON/HUAWEI, etc.)**

# Comparison

## Traditional Operation

VS

## Operation with PMS



All personnel perform direct operations on OMC-R.



Only version upgrade is performed directly on OMC-R.



The small number of OMC-R terminals forced the people to scramble for these terminals, thus affecting the work efficiency.



Routine optimization, statistics, and analysis are done through PMS, making all operations secure, easy and rapid.

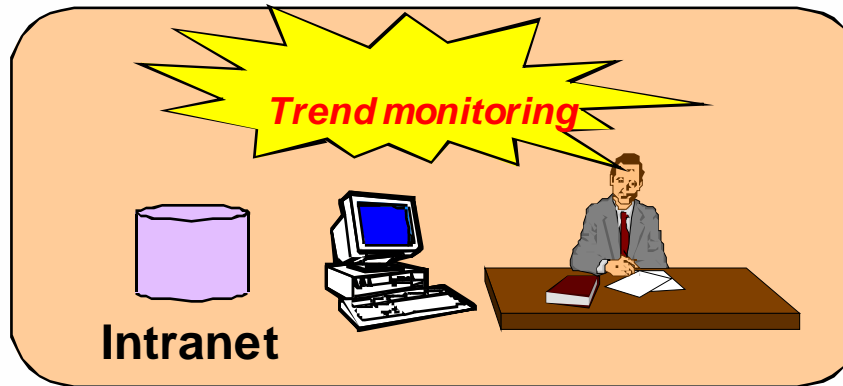


- Potential hazards from unintentional addition, deletion and modification of data
- Overload of OMC-R
- Low efficiency
- Data can be stored for only 2 weeks in database.

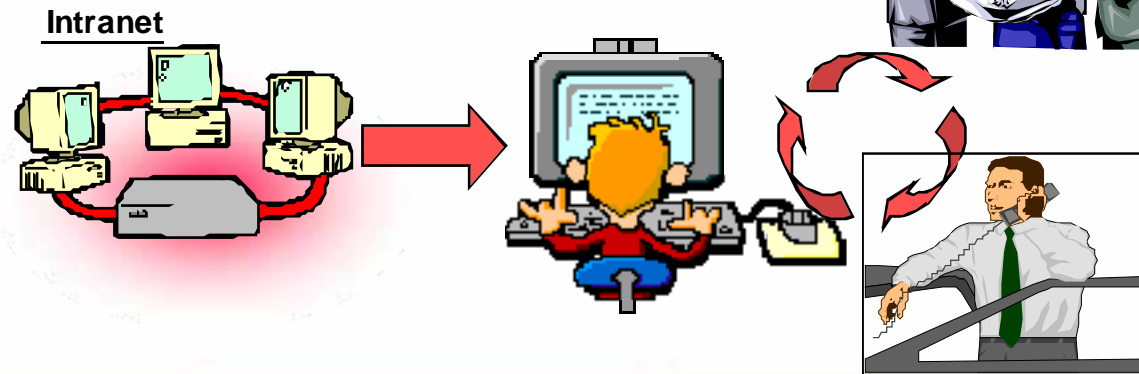


- Secure and free from unintentional addition, deletion and modification of data
- Lighter load on OMC-R
- Faster operation
- Data can be stored as long as possible due to the size of hard disk.

# A variety of monitoring ways

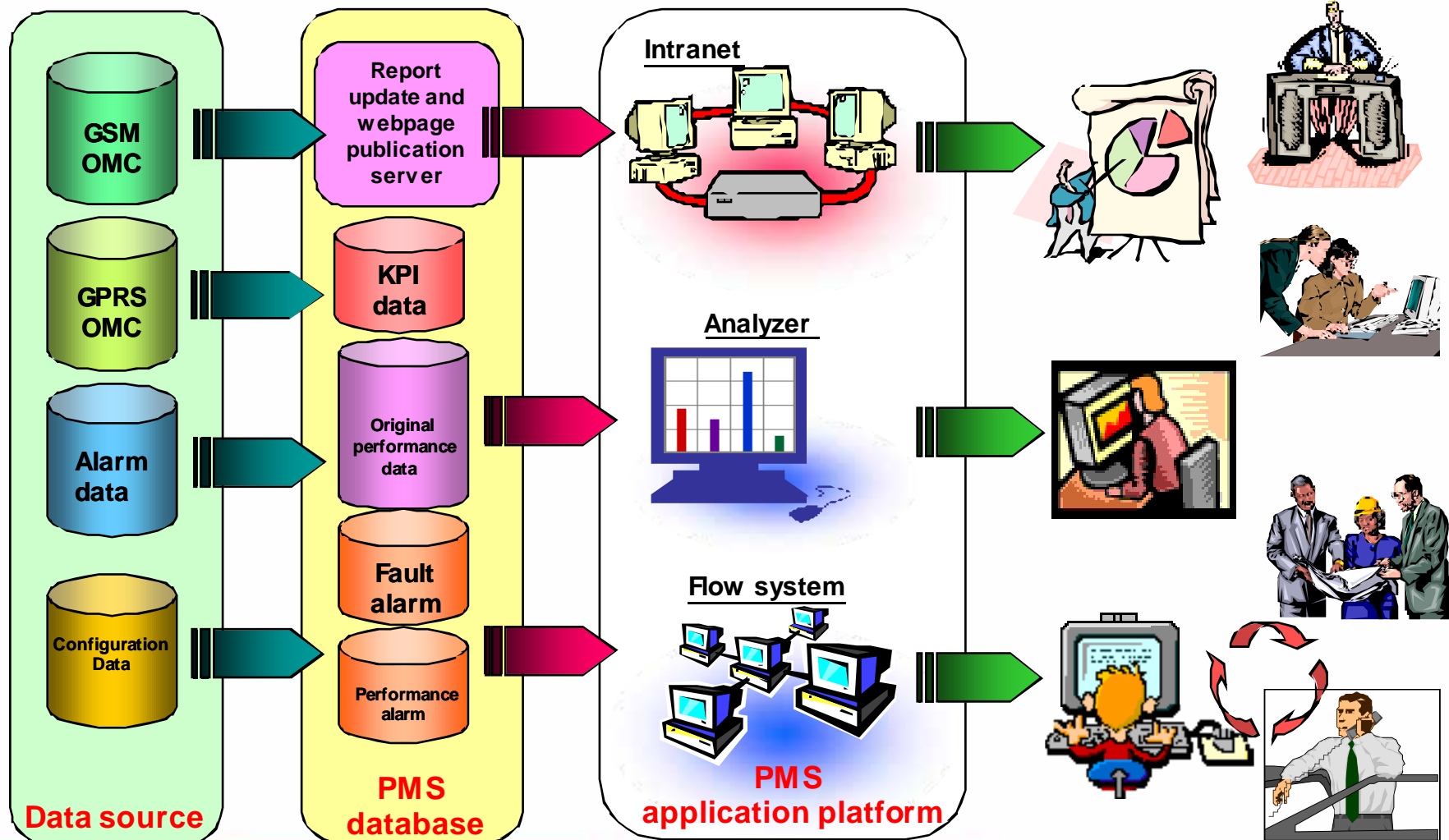


- Standardize work order flow
- Realize electronic management
- Locate problems easily
- Prevent shift of responsibility



- Current situation of network maintenance and management
- One of the solutions: PMS/EMS
- **Overview of PMS/EMS**
- PMS/EMS functional modules
- Case study
- Summary

# Platform architecture



# Specialized solution

**Specialized analysis of radio network performance (PMS)**

**Performance Management**

**Fault Management**

**Configuration Management**

**Alarm Management**

**Work Order System**

**GIS System**

**Real-time monitoring and alarm notification  
of hardware fault (EMS)**

- Current situation of network maintenance and management
- One of the solutions: PMS/EMS
- Overview of PMS/EMS
- **PMS/EMS functional modules**
- Case study
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## PMS

Datetime	Network	BSC	alarm name	cell_name	BSC	site_name	manufactory
07-23 12:30		Madina_BSC_03_E403	CSSR Low	47031	Asseer_BSC_44_E704	4703-Riyadh_Road	MOTO
07-23 12:30		Asseer_BSC_50_E711	CSSR Low	47032	Asseer_BSC_44_E704	4703-Riyadh_Road	MOTO
07-23 12:30		Asseer_BSC_45_E705	CSSR Low	47033	Asseer_BSC_44_E704	4703-Riyadh_Road	MOTO
07-23 12:30		Asseer_BSC_41_E701	CSSR Low	47601	Asseer_BSC_44_E704	4760-Hamis_Riya	MOTO
07-23 12:30	Western		CSSR Low	47602	Asseer_BSC_44_E704	4760-Hamis_Riya	MOTO

## EMS

System main modules information:

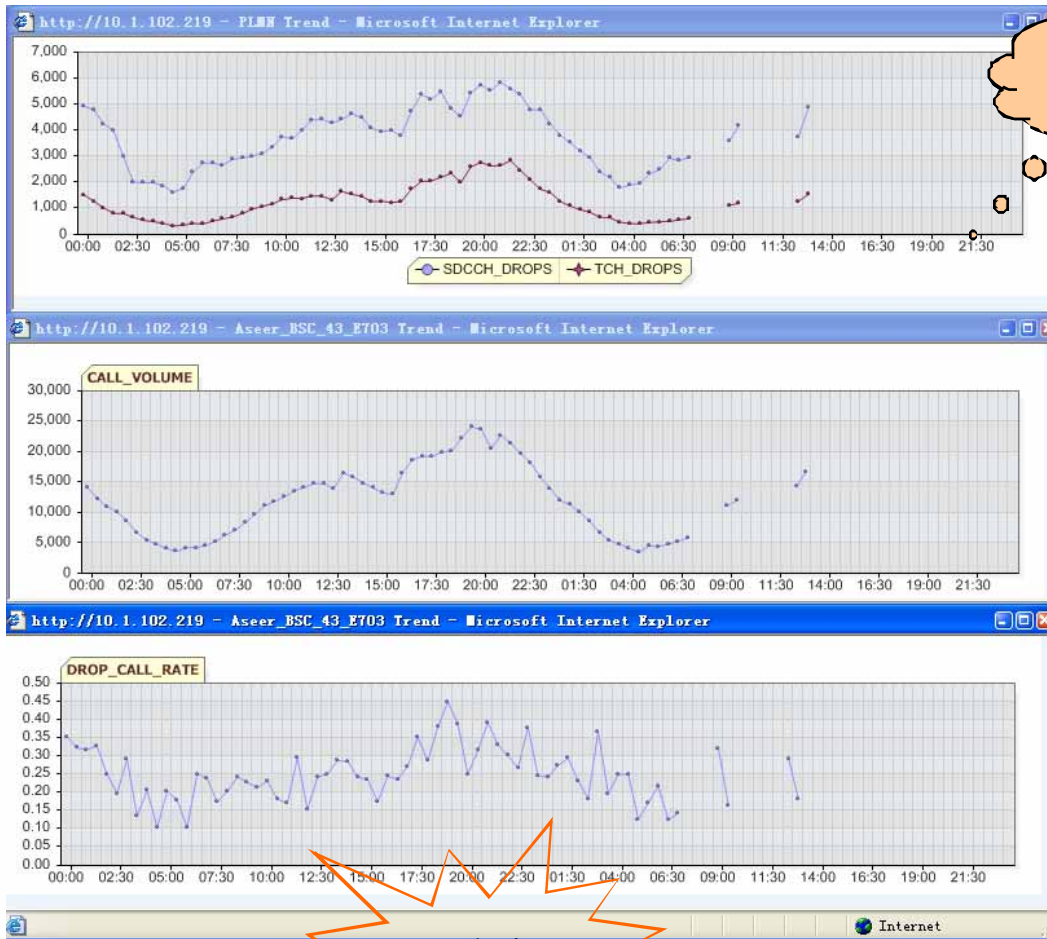
- GIS geographic information is the main base station status in real-time monitoring
- Real-time warning has been divided into real-time view and remove warning two modules; the user to view real-time view of the definition of various types of alerts warning information corresponding to the list, just remove warning has been cleared to view the history of warning!
- Module provides a comprehensive analysis of the external alarm, base stations fault, Event Alarm statistical analysis functions; and can generate results for the corresponding statistical trends and Excel documents. The module also includes a variety of historical records for alarm!
- The single module provides analysis on the single-generated warning, and then on to monitor the distribution of the single-maintenance and closure of the function, and to all the single query, statistical functions, or for the results of statistics can generate the corresponding Excel document!
- System can be set up real-time warning of the type of real-time warning category, external alarm, the cause of the malfunction, VIP base stations, and short messaging, and other basic data set, which can be a corresponding increase, modify and delete such an operation!
- System Management module of the system of company information, the department of information, information for maintenance staff, can also employees of the department and the allocation of management competence, but also in the personnel system for the historical information log!

**Friendly reminder:**

- Internet Explorer 6.0 or above must be a normal visit to the site!
- Internet best screen resolution in 1024 \* 768 and above!
- The correct use of the menu is: just when the start of a node can be moved to the top, and to enter into a module, to click.
- Animation can not watch, set up by the following approach: tools -> Internet Options -> Content Advisor -> Automatic -> player in the animation page (in front of check) -> set!

**Online users information:**  
Now have users online: admin(Administrator)

# PMS Characteristic Function 1 - near time monitor



Near time



Trend analysis

Real-time



# PMS Characteristic Function 2 - performance monitor

Advanced Settings - Alarm definition List

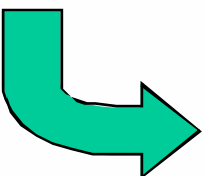
Search

Alter	Alarm No.	Alarm Name	Alarm Type	Alarm Formula
	1	SD_BLOCKING High	CELL	SDCCH_BLOCKING_RATE>20
	3	CSSR Low	SYSTEM	CALL_SETUP_SUCCESS_RATE<90
	4	DCR High	SYSTEM	DROP_CALL_RATE>1
	5	HO_SUCCESS Low	SYSTEM	HANDOVER_SUCCESS_RATE<90
	6	SD_BLOCKING High	SYSTEM	SDCCH_BLOCKING_RATE>1
	7	TCH_Blocking High	SYSTEM	TCH_BLOCKING_RATE>1
	8	CSSR Low	BSS	CALL_SETUP_SUCCESS_R
	9	DCR High	BSS	DROP_CALL_RATE>1
	10	HO_SUCCESS Low	BSS	HANDOVER_SUCCESS_RA
	11	SD_BLOCKING High	BSS	SDCCH_BLOCKING_RATE>

alarm conditions

A categorized list of performance alarms

Person responsible for the alarm



automatic

Performance Management

Flow process - Deal with the task:

WR Process

wrID	alarm_name	site	CI	BSC	emerge_time	level
67488	HO_SUCCESS Low			Aseer_BSC_38_E709	2008-7-23 13:00:00	1
67485	CSSR Low			Aseer_BSC_41_E701	2008-7-23 13:00:00	1
67486	CSSR Low			Aseer_BSC_40_E706	2008-7-23 13:00:00	1
67490	CSSR Low			Qaseem_BSC_20_E600	2008-7-23 13:00:00	1
67497	DCR High			Qaseem_BSC_20_E600	2008-7-23 13:00:00	2
67506	HO_SUCCESS Low			Qaseem_BSC_24_E604	2008-7-23 13:00:00	1
67491	CSSR Low			Qaseem_BSC_24_E604	2008-7-23 13:00:00	1

Receiver:  CC:

WR Description

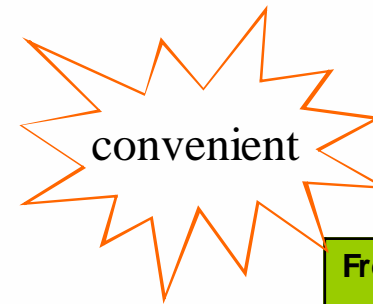
WR ID	67486	FirstTime	2008-7-23 13:00	Site		BSC	Aseer_BSC_45_E709	WR type	statistics alarm
emerge time		CI		Region		WRState	unprocess	Stand	
WRSource	BSS	Network	100003948	1thPerson	sys	Person		FirstTime	
Level	1	Level	1 the most serious					PM query	

Reasons of Adjustment:  Trigger indicators:  Recent indicators:

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Performance alarms

# PMS Characteristic Function 3 -report tool



- Frequently-used reports:**
- Default System Report
  - Default Cell Report
  - Default Statistics Report

**Users can customize reports based on their requirement of statistic analysis.**

**They can:**

- Customize by grade (BSS/Carrier/Cell)
- Customize KPI formulas concerned
- Set a VIP BTS report



	Aseer_BSC_45_E705	CSSR Low
	Madina_BSC_03_E403	CSSR Low

Daily Report: 2008-7-22  check [More...](#)

- ❖ GPRS EDGE Report: (PLMN  North  Western )
- ❖ Network Level: (PLMN  North  Western )
- ❖ Top\_Worst\_Cells: (PLMN )

Click to rebuild the report!

# PMS Characteristic Function 4 - KPI analysis

**Network Element Tree**

**Query Template**

**Report Analysis**

**Pareto Analysis**

**Single Value**

**scientific**

# PMS Characteristic Function 5 - work order

A categorized list of performance alarms

This screenshot shows a table of performance alarms. The table has columns for WR ID, alarm\_name, site, CI, BSC, emerge\_time, and level. Several rows are highlighted in green, indicating active or critical alarms.

WR ID	alarm_name	site	CI	BSC	emerge_time	level
17498	HD_SUCCESS.Low			BSC_36_670V	2008-7-23 13:00:00	1
17495	CSR.Low			BSC_41_6701	2008-7-23 13:00:00	1
17499	CSR.Low			BSC_45_6700	2008-7-23 13:00:00	1
17490	CSR.Low			Green_BSC_20_6600	2008-7-23 13:00:00	1
17487	DOR.High			Green_BSC_20_6600	2008-7-23 13:00:00	2
17506	HD_SUCCESS.Low			Green_BSC_24_6604	2008-7-23 13:00:00	1
17491	CSR.Low			Green_BSC_24_6604	2008-7-23 13:00:00	1

This screenshot displays the detailed configuration for a specific alarm. It includes fields for Receiver, CC, and a detailed description of the alarm, including its source, time, and associated BSC and CI information.

**WR Description:**  
 WR ID: 17488  
 FirstTime: 2008-7-23 13:00  
 Site: BSC  
 Area: BSC\_41\_E  
 WR type: statistics alarm  
 Close time: CI  
 Region: Wuzhou  
 WSource: BSS  
 Network: 100003948  
 BPerson: sys  
 Person: Person  
 FirstTime: 2008-7-23 13:00  
 Times: 1  
 Level: 1 (the most serious)

Information of alarm-related items

This screenshot shows the configuration for the alarm's adjustment and closure. It includes fields for Reasons of Adjustment, Trigger indicators, Alarm conditions, and Reasons for closure.

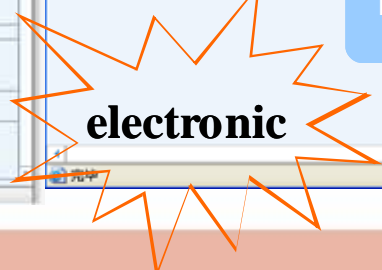
**Reasons of Adjustment:**  
 Trigger indicators: CALL\_SETUP\_SUCCESS\_RATE=94.1454  
 Alarm conditions: CALL\_SETUP\_SUCCESS\_RATE<94  
 Reasons for closure: Process Content

Information of items related to alarmed elements

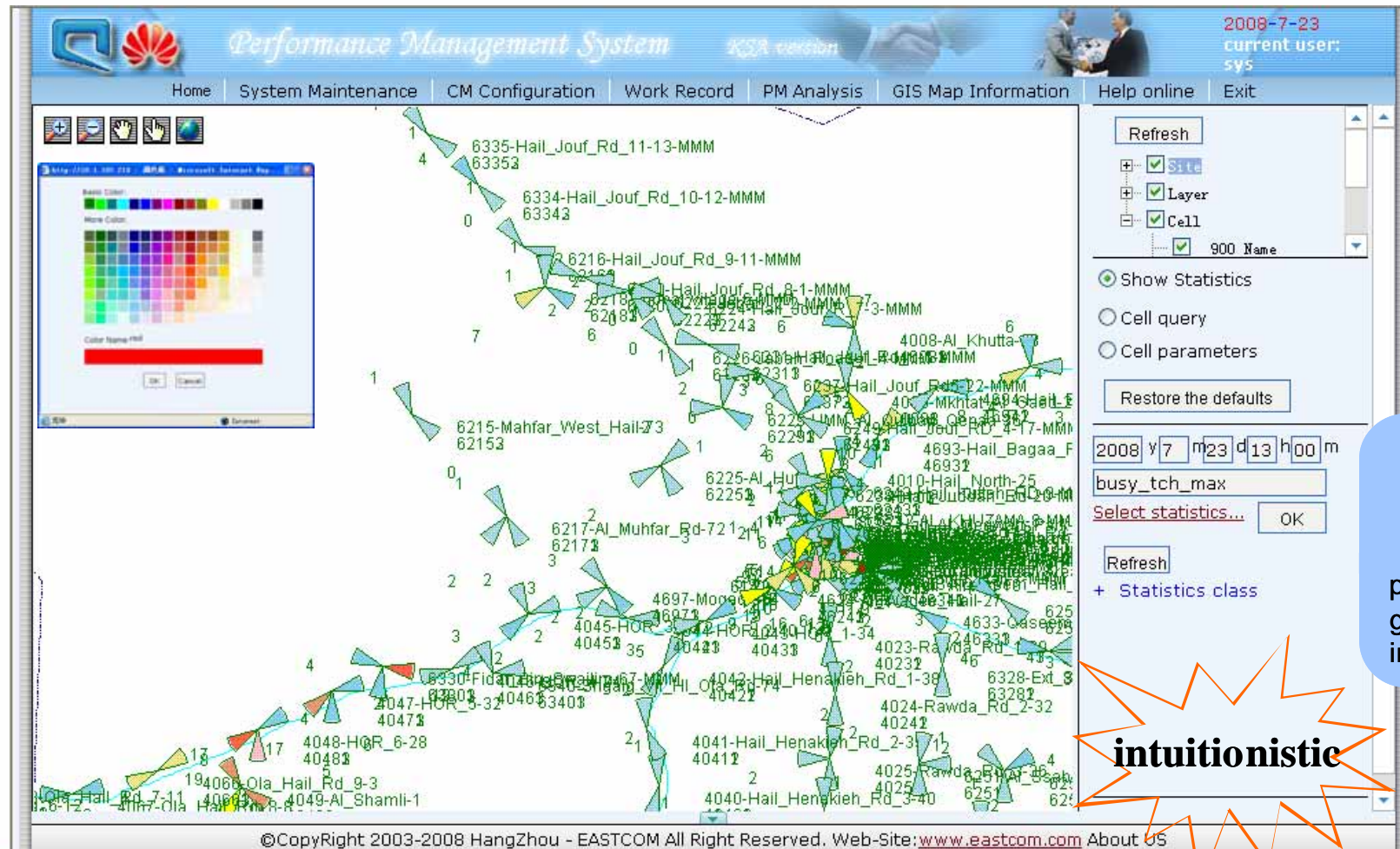
This screenshot shows a table of work order flow list. The table has columns for WR\_ID, Flow\_NO, Process\_content, Processor, Send\_time, Attachment1, Attachment2, and Attachment3.

WR_ID	Flow_NO	Process_content	Processor	Send_time	Attachment1	Attachment2	Attachment3
65665	1	check the bss	sys	2008-7-22 12:00:57			
65665	2	i have .....	testuser	2008-7-22 12:09:50			
65665	3		sys				

Persons, time, and contents related to each steps of alarm handling



# PMS Characteristic Function 6 - GIS analysis



Cell search  
Categorized display  
Real-time publication of geographical information

intuitionistic

# EMS Characteristic Function 1 - real-time monitor

The screenshot shows the 'Alarm Event Management System' interface. At the top, it displays the date '2008-7-23' and the current user 'admin (Administrator)'. The main navigation bar includes options like 'Real-time Alarm', 'Integrated Analysis', 'Work Record', 'Configuration', 'System', 'Cop Check', 'Help', 'User Information', and 'Log Out'. Below this, there are two sections for monitoring: 'Site Down' and 'MTL'. The 'MTL' section is currently selected, showing 'Total 350 results!'. A table below lists various alarm events with columns for View, Region, BSC, Site Name, Site ID, Emerge Time, Last, Type, Alarm Content, Alarm Level, and Alarm Info. The table contains several rows of data, including entries for Yanbu and Madina regions with BSC IDs like BSC\_05\_E405 and BSC\_10\_E410. A blue callout box on the left side of the screenshot contains the following text:

BTS service-exit display

Display of five BTS statuses:  
(disconnected, common fault, etc.)

Show whatever type you want

# EMS Characteristic Function 2 - Intelligent Patrol Tool

**Patrol Tool**

Start Date: 2008-7-16

Start hour: Hour Min Sec

Patrol Interval: 24 Hour

Log:  
 2008-7-15 16:02:20 The attempt to login onto OMCR:10.71.95.12, Port:23  
 2008-7-15 16:02:32 tty\_login HZBSC038  
 Last login: Tue Jul 15 16:03:50 from 10.71.77.248 Sun Microsystems Inc. OS 5.10 Generic January 2005

Session ID: 26 User: zmc Host: mm12 Source: TTY  
 [15/07/08 16:05:57] MMI-RAM 0115 [zmc] -> state 59 dri \*\*

DEVICE STATUS INFORMATION FOR LOCATION 59:  
 OPER STATES: D:Disabled E:Enabled B:Busy  
 ADMIN STATES: L:Locked U:Unlocked E:Equipped S:Shutdown

Device	State	Reason	Last Transition	Related
			dd/mm hh:mm:ss	Function
DRI 0 0 0	B-U	NO REASON	15/05 13:05:42	KTY 0 0 0
DRI 0 1 0	B-U	NO REASON	15/05 13:05:46	KTY 0 2 0
DRI 0 2 0	B-U	NO REASON	29/06 03:46:40	KTY 0 1 0
DRI 0 4 0	B-U	NO REASON	15/05 13:05:54	KTY 0 3 0
DRI 0 5 0	B-U	NO REASON	15/05 13:05:58	KTY 0 4 0
DRI 1 0 0	B-U	NO REASON	15/05 13:05:42	KTY 1 0 0
DRI 1 1 0	B-U	NO REASON	15/05 13:05:46	KTY 1 2 0
DRI 1 2 0	B-U	NO REASON	29/06 03:46:40	KTY 1 1 0
DRI 1 4 0	B-U	NO REASON	15/05 13:05:54	KTY 1 3 0
DRI 1 5 0	B-U	NO REASON	15/05 13:05:58	KTY 1 4 0
DRI 2 0 0	B-U	NO REASON	15/05 13:05:42	KTY 2 0 0
DRI 2 1 0	B-U	NO REASON	15/05 13:05:46	KTY 2 2 0
DRI 2 2 0	B-U	NO REASON	29/06 03:46:40	KTY 2 1 0
DRI 2 4 0	B-U	NO REASON	15/07 15:51:16	KTY 2 4 0
DRI 2 5 0	B-U	NO REASON	15/07 15:49:47	KTY 2 3 0

END OF STATUS REPORT

[15/07/08 16:05:59] MMI-RAM 0115 [zmc] -> exit  
 Login: |

**Abnormal Equipment**

Abnormal Equipment Cop:  
 Start time: 2008-07-21 End time: 2008-07-21  
 Total 242 results!

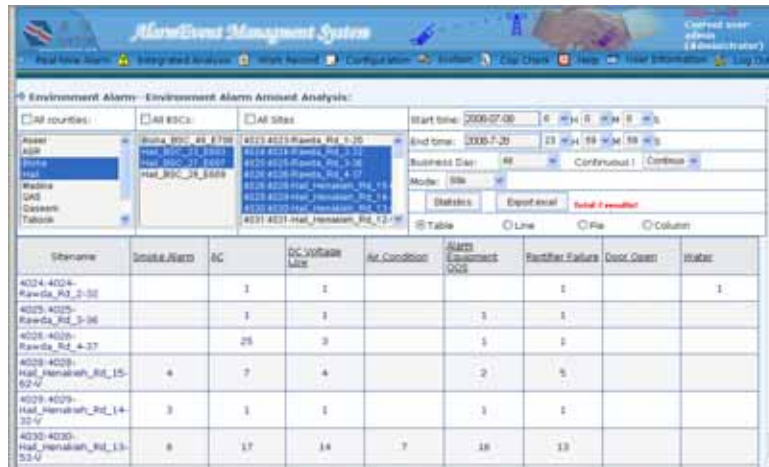
Inspection date	Fault date	Last time	BSC	Site No	Site name	Equipment	State	Reason	Rec
2008-7-21 14:30:43	2008-7-21 14:26:28	000H	Madina_BSC_03_E403	21	4192-Almigt-21	DRI 0 4 0	D-L	NO REASON	No
2008-7-21 14:30:41	2008-7-21 14:25:03	000H	Madina_BSC_03_E403	21	4192-Almigt-21	DRI 0 3 0	D-L	NO REASON	No
2008-7-21 14:30:40	2008-7-21 14:24:53	000H	Aser_BSC_44_E704	41	3099-Sawame-41	DRI 1 3 0	D-U	NO REASON	No

**Abnormal Cell**

Total 3113 results!

Site No	Site name	LAC	CI	Recoverable	Status	GPRS Status	SDCCHE	SDCCHE ST	CHU	N.O.TCHFE	N.O.TCHFI	N.O.TCHFU	N.L
26_E606 6	6304-Duhaymaa-6-MMM	4132	63042	No	Unbarred	Unbarred	6	2	0	0	0	0	0
26_E606 6	6304-Duhaymaa-6-MMM	4132	63042	No	Unbarred	Unbarred	5	3	0	0	0	0	0
26_E606 6	6304-Duhaymaa-6-MMM	4132	63041	No	Unbarred	Unbarred	7	1	0	0	0	0	0
26_E606 5	6299-Albadal_Akaramh_Rd-5-MMM	4132	62982	No	Unbarred	Unbarred	7	1	0	0	0	0	0
26_E606 5	6299-Albadal_Akaramh_Rd-5-MMM	4132	62982	No	Unbarred	Unbarred	7	1	0	0	0	0	0
26_E606 5	6299-Albadal_Akaramh_Rd-5-MMM	4132	62981	No	Unbarred	Unbarred	5	3	0	0	1	0	0
26_E606 4	6325-Al_Amar-4-MMM	4132	63251	No	Unbarred	Unbarred	15	1	0	0	3	0	0
26_E606 4	6325-Al_Amar-4-MMM	4132	63252	No	Unbarred	Unbarred	15	1	0	0	0	0	0
26_E606 4	6325-Al_Amar-4-MMM	4132	63252	No	Unbarred	Unbarred	15	1	0	0	0	0	0
26_E606 3	6281-Al_Malqaa-3-MMM	4132	62811	No	Unbarred	Unbarred	7	1	0	0	1	0	0

# EMS Characteristic Function 3 - - integrated analysis



Environment Alarm  
--amount analysis  
--trend analysis  
Event Alarm  
--amount analysis  
--trend analysis  
Log Query  
--history query  
--alarm query

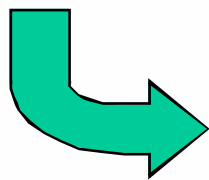


# EMS Characteristic Function 4 – work order

Threshold Times  
Threshold Period  
Cycles  
Emergency level

Total 3997 result!

Title	BSC	Site ID	Site name	Type	Alarm content	Time	Fault detail	Send time
(alertwatch)0 GBL 1 book_Tabook_BSC_11_E441-PCU-0: Config Tag fd802237	Tabook_BSC_11_E441	book_0	Tabook_BSC_11_E441-PCU-0	GBL	Link Disconnected	2008-7-20 9:57:50	Tabook_BSC_11_E441 0 GBL 1 book_Tabook_BSC_11_E441-PCU-0: Config Tag fd802237 [0] Link Disconnected	2008-7-20 10:13:1
(alertwatch)0 GBL 1 book_Tabook_BSC_11_E441-PCU-0: Config Tag fd802237	Tabook_BSC_11_E441	book_0	Tabook_BSC_11_E441-PCU-0	GBL	Link Disconnected	2008-7-20 9:57:50	Tabook_BSC_11_E441 0 GBL 1 book_Tabook_BSC_11_E441-PCU-0: Config Tag fd802237 [0] Link Disconnected	2008-7-20 10:13:1
(alertwatch)0 GBL 1 book_Tabook_BSC_11_E441-PCU-0: Config Tag fd802237	Tabook_BSC_11_E441	book_0	Tabook_BSC_11_E441-PCU-0	GBL	Link Disconnected	2008-7-20 9:57:50	Tabook_BSC_11_E441 0 GBL 1 book_Tabook_BSC_11_E441-PCU-0: Config Tag fd802237 [0] Link Disconnected	2008-7-20 10:13:1
(alertwatch)0 GBL 1 book_Tabook_BSC_11_E441-PCU-0: Config Tag fd802237	Tabook_BSC_11_E441	book_0	Tabook_BSC_11_E441-PCU-0	GBL	Link Disconnected	2008-7-20 9:57:50	Tabook_BSC_11_E441 0 GBL 1 book_Tabook_BSC_11_E441-PCU-0: Config Tag fd802237 [0] Link Disconnected	2008-7-20 10:13:1



# EMS Characteristic Function 5 – smart definition

Real-time alarm type definition for monitor

Real-time alarm category

Real-time alarm type definition for monitor

Real-time alarm category

External alarm definition authority definition

External alarm definition

- Current situation of network maintenance and management
- One of the solutions: PMS/EMS
- Overview of PMS/EMS
- PMS/EMS functional modules
- **Case study**
- Summary

## Successful Cases :

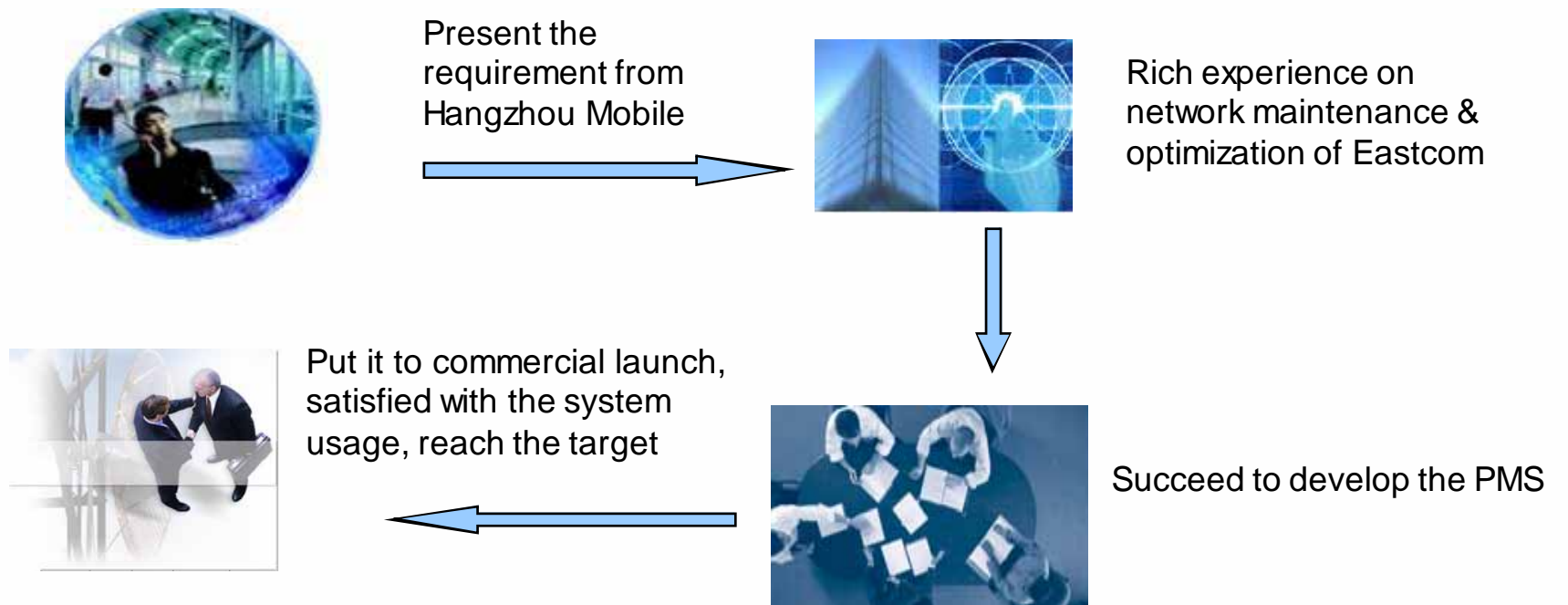
1. Hangzhou Mobile
2. Mobily in Saudi Arabia
3. 5 more Mobile Operators in Zhejiang
4. Taiyuan Mobile
5. Jinan Unicom
6. Heilongjiang Unicom
7. Fujian Unicom
8. And more than 20 district level Operators

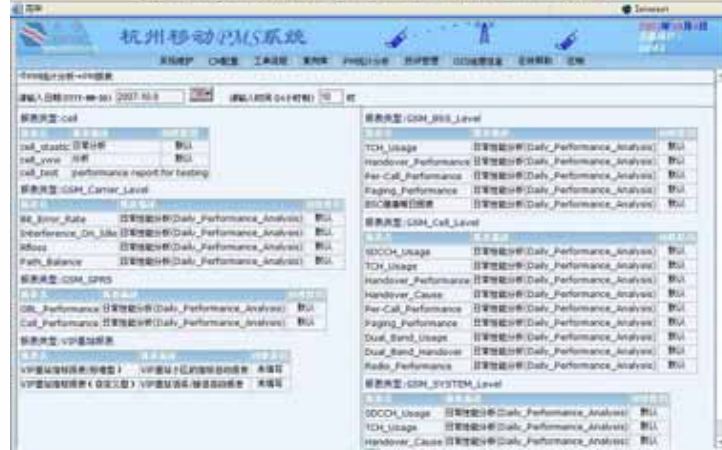
## Medal Certification :

1. Proxime Accessit in Tech. Innovation China Mobile in 2004
2. Proxime Accessit in Science & Tech Advancement Shanxi Pro.
3. Diploma in Core Tech. of Science in Fujian Pro.

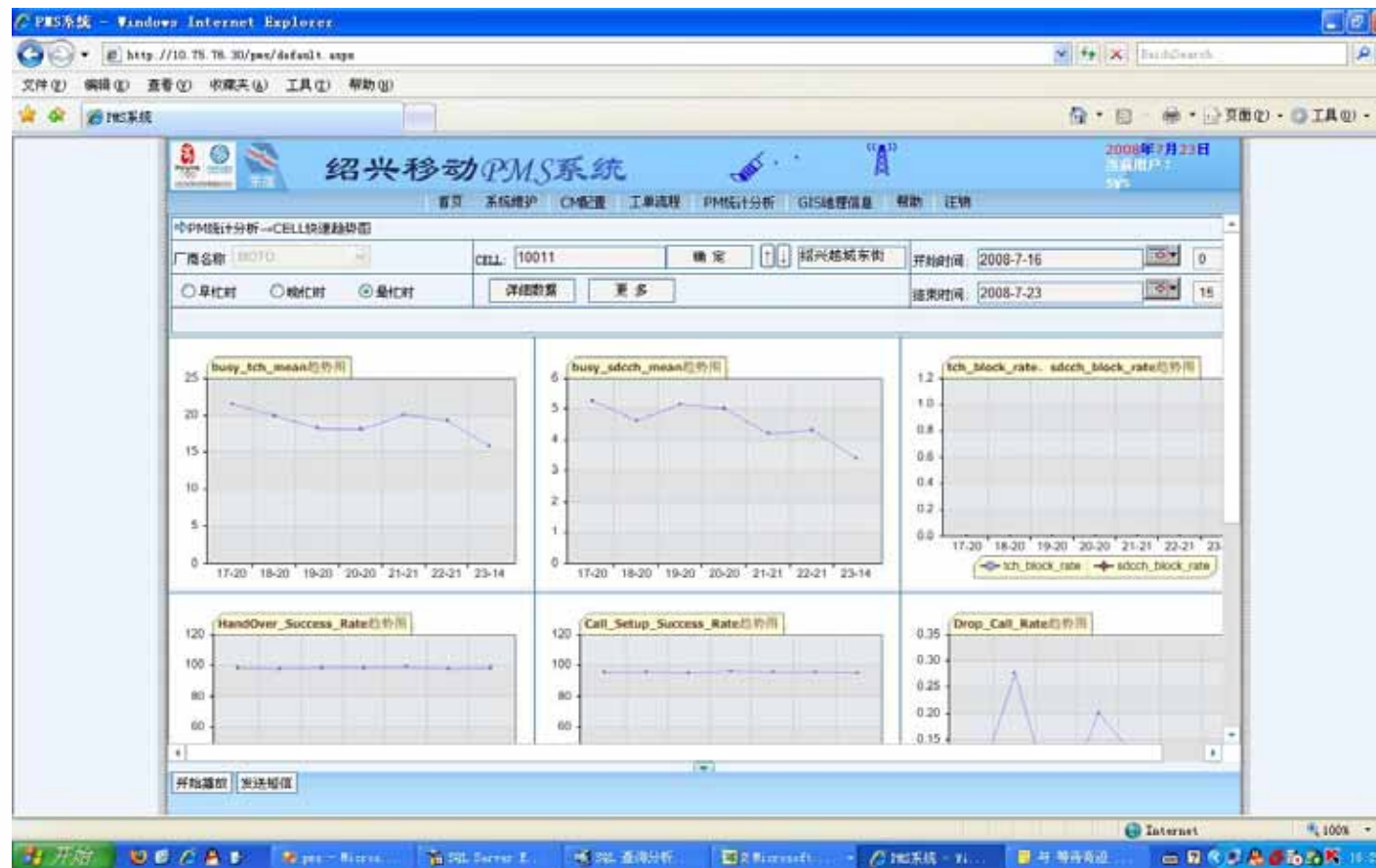
## Case 1: PMS & EMS in Hangzhou

**Background:** In order to improve the quality and efficiency of network maintenance and monitor, optimization the process of fault manage and enhance the ability of management, Hangzhou Mobile required us to develop PMS&EMS





## Case 2: PMS & EMS in Shaoxin zhejiang



# Case 3: PMS & EMS in Ningbo zhejiang

2008年7月23日  
当前用户: 395

系统维护 CM配置 工单流程 PMS统计分析 GIS地理信息 帮助 注销

工单操作

获取系统发起工单 获取待处理工单 获取抄送工单 获取疑难工单 手工发起工单

工单排序方式(排序):  按生成时间  按接收时间

基站	小区	告警名称	级别	负责人	工单状态
>>> M049383B12547DongZhang	39833	小区上下行TDF建立成功率低(2级)	2	袁森标	已处理
>>> M049383B12547DongZhang	19833	小区上下行TDF建立成功率低(2级)	2	袁森标	已处理
>>> M044130B108513DouMen	24301:RTF-01-01	下行质量差(2级)	2	吴敏强	已处理
>>> M041213B57513NanJiuShan	11132	小区呼叫建立成功率低(2级)	2	袁森标	已处理
>>> M044357B76575YongFengCun	34573	小区PDTCH忙(3级)	3	吴敏强	已处理
>>> M044434B109534DaYangAo	24344	小区完全吊死,无主叫,无切换业务	3	吴敏强	已处理
>>> M046542B49542HuaLianSeFang 18	26425~64	小区上下行TDF建立成功率低(2级)	2	张祖玉	已处理

1 2 3 4 5 6 7 8 9 10 ...

您的当前工单状态: (待处理工单)

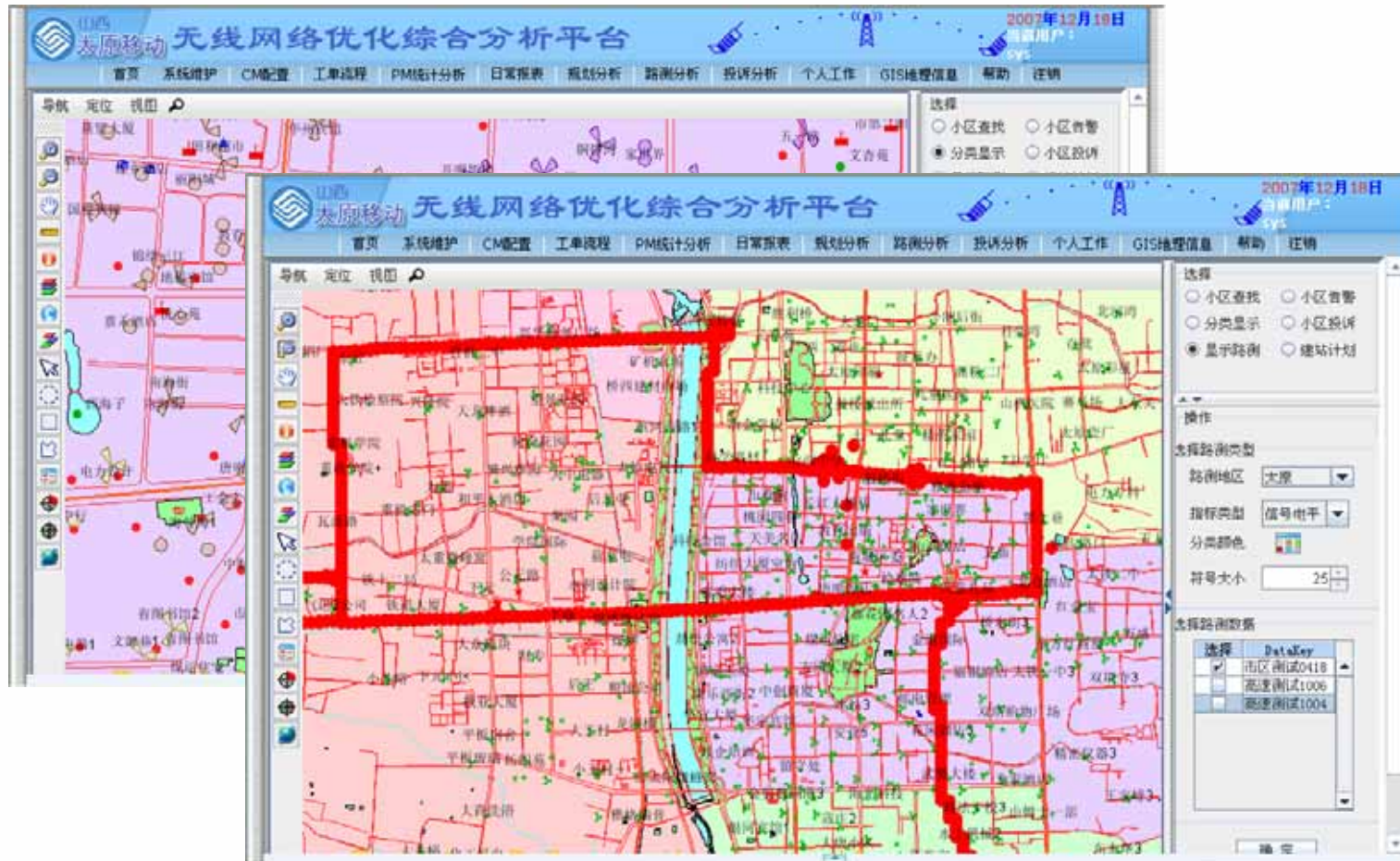
等级	未响应	已响应	响应超时	处理超时
1级	0	3	0	26
2级	0	11	0	25
3级	0	16	0	141
4级	0	0	0	0

工单内容

工单号	生成日期	基站	BSC号	工单类型
关闭日期	小区	区域	工单状态	持续时间
工单生成来源	网元号	原始发出人	当前处理人	响应时间

开始播放

## Case 4: PMS in Taiyuan shanxi



# Saudi Mobily PMS & EMS

**Eastcom PMS System**

**Eastcom EMS System**

Performance Management System

2008-7-23  
current user:  
SYS

Home | System Maintenance | CM Configuration | Work Record | PM Analysis | GIS Map Information | Help online | Exit

PMS Main Modules Introduce:  
The PMS system is including: System Maintenance, CM Configuration, PM Analysis, Work Record, GIS analyse...

Your Last WR: [More...](#) New Cell List: (Please fill in the information of new cells) [More...](#)

datetime	Network	BSC	alarm name	cell_name	BSC	site_name	manufactory
07-23 12:30		Madina_BSC_03_E403	CSSR Low	47031	Aseer_BSC_44_E704	4703-Riyadh_Road	MOTO
07-23 12:30		Aseer_BSC_50_E711	CSSR Low	47032	Aseer_BSC_44_E704	4703-Riyadh_Road	MOTO
07-23 12:30		Aseer_BSC_45_E705	CSSR Low	47033	Aseer_BSC_44_E704	4703-Riyadh_Road	MOTO
07-23 12:30		Aseer_BSC_41_E701	CSSR Low	47601	Aseer_BSC_44_E704	4760-Khamis_Riya	MOTO
07-23 12:30		Western	CSSR Low	47602	Aseer_BSC_44_E704	4760-Khamis_Riya	MOTO

Daily Report: 2008-7-22  check [More...](#)

GPRS EDGE Report: (PLMN  North  Western )  
 Network Level: (PLMN  North  Western )  
 Top\_Worst\_Cells: (PLMN  )  
 Click [to rebuild the report!](#)

Data Collection Information:  
 MOTO PM Last Data: 2008-7-23 12:30:00  
 MOTO CM Last Data: 20080723  
 NOTE: If the data of pm&cm is not full, please contact the administrator of system immediately! Thanks!

TOI Alarm Cell List: [More...](#)

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- Current situation of network maintenance and management
- One of the solutions: PMS/EMS
- Overview of PMS/EMS
- PMS/EMS functional modules
- Case study
- **Summary**

## System Features (1)

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- **Available for query anytime without limit to number of users**

The WEB-based B/S structure provides easy operation. The client browser needs no additional software support. With the advantages of low cost, easy upgrade and excellent scalability, the system not only breaks the restriction of PM statistics means in a stand-alone version but also frees users from the trouble of contending for OMC-R terminals and solves the problem of low efficiency.
- **Secure and reliable without direct operations on OMC-R**

Frequent operation on OMC-R by users not only affects speed but is subject to potential hazards. The PMS helps reduce direct operations on OMC-R, as it can undertake the jobs of statistics, analysis and optimization, guaranteeing security of OMC-R by eliminating problems of unintentional data addition, deletion, or modification as well as speed decline that may result from direct operations on OMC-R.

## System Features (2)

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➤ **Efficient and accurate with automatic data processing**

The system can automatically summarize collected data for statistics and analysis. Completeness and integrity of data enables easy discovery of any problem, and breaks through the common bottleneck of low efficiency in discovering a problem by manual data collection and manual statistics and analysis.

➤ **Real-time and efficient with fault alarm monitoring**

The troubleshooting period is shortened effectively by timely data collection, real-time monitoring of devices for abnormal operations, and diversified means of notifying maintainers.

➤ **Standardized in management with electronic work order flow**

The management benefits are enhanced by standardizing work order flow and preventing shifting of responsibility in work.

## System Features (3)

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- **Visual and convenient with geographic information display (GIS)**  
The network optimization maintenance is made easier by visual display of network performance and BTS faults with the help of the Mapinfo-compatible geographic information distribution system in combination with geographic locations of BTSs, local geographic environment, and adjacent sectors.
- **Attaching special significance by monitoring VIP elements**  
VIP NEs can be determined flexibly and monitored with emphasis for timely troubleshooting.
- **Computerized and informationalized with mainstream design concepts**  
The system provides customized functions, simple and easy means of operation, efficient and diversified information queries, powerful geographic information query.

## Summary

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- Advanced management philosophy
- User-friendly system design
- Simple & easy means of operation
- Real-time effective alarm notification
- Powerful geographic information system
- Timely and efficient heartfelt service



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Thank you