SOP for Major Operation of Existing Network

* 1. **Scope**

This standard stipulates the procedures and requirements for major operation of all system equipment operating in existing network, including the equipment access cutover, version upgrade, equipment maintenance, network adjustment and restructure, etc.

This standard is applicable to ZTE after-sales service organizations at each level, including each Network Service Center of Engineering Service Division, Engineering Service Department and local office of Sales Division.

This standard is not applicable to the experiment for market expansion or the trial office for demonstration.

**2.Normative References**

The following provisions, through reference in this document, constitute provisions of this Standard. For the references not dated, the latest edition shall apply.

Q/ZX 75.1831.1 SOP for Customer Request Management

Q/ZX 75.1831.2 Customer Request Management – Emergency Support SOP

Q/ZX 75.1831.5 Customer Request Management – Onsite Support SOP

Q/ZX 75.1731.2 After-sales Version Management SOP for Version Upgrade

Q/ZX 85.1141 SOP for After-sales Quality Penalty

Q/ZX 75.1861 Conduct Standards of After-Sales Field Service

* 1. Terms and Definitions
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The following terms and definitions apply to this standard.

* + - 1. Major Operation

It refers to the operation for equipment operating on existing network, for which the failure impact will result in major loss of the customer service or major customer complaint. (Note: Major operation doesn’t depend on the complicacy of the operation. Very simple operation may be major, e.g., reset will belong to major operation as long as its failure impact reaches the stipulated scope.).

Generally, the activities that belong to major operation of existing network should match the following conditions a), b) and c) at the same time or one of the conditions d), e) and f).

1. Customer: Level-S and level-A customers of ZTE.
2. Region: the cities which are political, economic and cultural centers and where the network is located, for example

* -provincial capitals and municipalities of China, national capitals and state cities.
* developed cities

1. Activities: Major activities, e.g.:

* Equipment access cutover
* Network adjustment and restructure
* Operation for core parts
* Version upgrade

1. Scope: major activities for “Level One Network” of ZTE.
2. Time: major festival (e.g., National Day), period of major market activity (e.g., tender, contrast test with competitors, inspection of the customer or the national leadership, Olympics security, etc), or any other time limit customers claim specially.
3. Change: temporary change in the above-mentioned major operation plan.
   * + 1. Operation Window Period

It refers to the timestamp of a scheduled operation for the existing network. E.g., the cutover is planned to be implemented at 00:00 – 04:00 am. “00:00 – 04:00 am” here is called an operation window period.

* + - 1. Scheduled Outage

It refers to a planned outage agreed on with the customer caused by a scheduled maintenance, installation or manual initialization, which is permitted by the customer and they have made adequate preparations for.

* 1. Responsibilities
     1. Customer

It refers to the person who is responsible for reviewing and confirming the implementation of major operation, as well as coordinating the customer resource. The representatives can be the customer engineer, supervisor and the related leaders.

* + 1. Technology Director of Customer Support Center

It refers to the person who is responsible for releasing and updating the “Level One Network” within ZTE. (Note:”Level One Network” is defined by Network Service Center and Customer Support Center together.

* + 1. Field Support Engineer of Representative/Local Office and Network Service Center

It refers to the engineer of the Sales Division and network service center who is responsible for organizing and implementing onsite major operation, as well as related customer communication and reporting.

* + 1. Technical Support Expert of Network Service Center and R&D Institute

It refers to the technical support expert of the network service center and R&D institute, responsible for assigning the manpower in China, approving the implementation plan for major operation, providing technical support and operation report after the major operation. Regarding the major operation with high risk, the technical support expert shall include R&D expert, for whom the list is decided by the chief engineer of the Network Service Center.

* + 1. Customer Service Manager of Representative/Local Office

It refers to the level-4 leader of the representative/local office who is responsible for onsite guide or remote instruction of major operation of existing network, as well as handling appropriately if the major operation fails.

* + 1. Product Director of Engineering Service Dept.

It refers to the person who is responsible for monitoring the implementation of major operation, as well as providing assistance if the major operation fails.

* 1. Requirements
     1. Implementation Plan for Major Operation

The “Implementation Plan for Major Operation” is formulated by the field support engineer of representative/local office/network service center on the basis of product technology manual and operation guide. For the format of “Implementation Plan for Major Operation”, please refer to “Form QR 75.XXXX-2010-03”, mainly including the following contents:

1. Major operation outline: describe the project background and objective in brief.
2. Onsite equipment data: list hardware and software configuration, including instructions of software and hardware version.
3. Description of preparation: include the preparations made by both ZTE and the customer, for example, all the tools, spare parts and notifications should be ready.
4. Implementation procedures: list the implementation procedures and notes in detail.
5. Service verification: contents of service verification and KPI observation.
6. Emergency plan: provide detailed emergency plan including the conditions for activating the plan and emergency return plan.
7. Back-stage support expert: There must be senior engineers to be responsible for onsite or remote guide during the whole process, and their phone number must be listed definitely..
   * 1. Preparation for Major Operation
8. Fill in the “Form R 75.1831.5 -2007-1 Onsite Service Application”, submit it to the customer in the field or fax the customer later.
9. Formulate the “Implementation Plan for Major Operation”, understand the information of equipment networking, configuration and version, consult the past maintenance records, remaining problem file and “customer service technical notification”, and specially note whether there is special version or patch.
10. The following staff should be informed one day in advance: the section chief and chief engineer of corresponding Network Service Center, the engineering director of the product line, the troubleshooting manager of R&D institute, and the product director of engineering service dept. The major operation for backbone network and trunk network shall be approved by the product director of engineering service dept.
11. Some exception, such as “the major operation must be performed regardless of the insufficient field environmental conditions, must be reported to Quality Department of ZTE to put on record. Quality Department is responsible for coordinating the work of Network Service Center, R&D Institute and customers to obtain agreement of major operation. During the major operation, related person from the network service center and R&D institute should be present in the field for onsite support, or provide remote support.
    * 1. Customer Cooperation
12. The major operation should be implemented under the cooperation of the customer technical support engineer. ZTE needs to understand the equipment operation feature and environment, get related customer contact information, and complete necessary data preparation.
13. ZTE should require the customer to inform in advance the subscribers who may be affected by the major operation.
    * 1. Onsite Behavior of Major Operation
14. The onsite support service behavior shall follow the “Q/ZX 75.1861 Conduct Standards of After-Sales Field Service”.
15. While providing service in the customer equipment room, ZTE staff should require the customer maintenance owner to accompany or assist. If it’s necessary to operate the customer equipment, it should be remarked in the “Onsite Service Application” and approved by related customer leader. Necessary backup and risk preventive measures shall be taken while checking the problem and no operation should be implemented out of the implementation plan without permission.
16. The operation window phase of major operation should be confirmed as per the industry practice (usually, 00:00-04:00).
17. Representative/Local office should monitor the engineers of network service center and R&D institute providing onsite support. If the engineers of network service center and R&D institute operate without following the “Conduct Standards of After-Sales Field Service”, the Office should take the primary responsibility.
18. After the major operation, ZTE staff shall monitor the existing network index and cannot leave the field after confirming the stable equipment operation and index recovery. The network index recovery should be defined according to the index in the peak time of the next day.
19. Except for following ZTE regulations, the implementation of major operation should also follow the customer management requirements.
    * 1. Troubleshooting
20. If the major operation results in service outage and the accumulated outage time exceeds the planned outage time, we regard it as a problem.
21. When something goes wrong with the major operation, ZTE should stop related operation immediately, activate the troubleshooting process, and report the problem impact scope to the section chief, service director and deputy general manager of the representative office, related section chief and chief engineer of the network service center, engineering director of product line, troubleshooting manager of R&D institute, and related product director of engineering service dept. If it is a critical problem and has not been recovered within 30 minutes, it should be reported to GCSC.
22. It is forbidden to operate blindly during troubleshooting so that a new problem or accident won’t occur.
    * 1. Security Management
23. The security vulnerabilities must be overcome. e.g., it is forbidden to disclose the super user authority to the customer to prevent their network administrator from modifying related data without permission.
24. Decisions of the customer should be achieved without delay and respected. Obtain the evidence of customer decision if necessary. E.g., whether operate once again when the major operation failed, whether return, etc, so as not to go beyond the scope of planned outage.
    * 1. Responsibility and Penalty
         1. Leader Responsibility System
25. Leader responsibility system shall be adopted in the major operation. As the owner, the leader should give on-site or remote guidance.

Deputy manager of the representative/local office is the direct leadership of the major operation.

1. Relevant superiors are responsible for critical accident caused by the failure of major operation according to the alarm escalation of Emergency Support SOP.
   * + 1. Penalty of Breach
2. The critical accident whose responsibility is taken by the representative/local office or engineer service dept. shall be reported to Quality Dept. of Engineering Service Division for penalty of breach in accordance with “Q/ZX 85.1141 SOP for After-sales Quality Penalty”. The Individuals who implement any nonstandard operation that resulted in the critical accident should suffer the penalty of class1, notification of criticism and the economic sanction of more than 1,000 yuan, In addition, it’s suggested that the responsible department should fire the direct person in charge. The department responsible for critical accident should suffer the penalty of class1, notification of criticism and the economic sanction of more than 10,000 yuan.
3. The critical accident whose responsibility is taken by the product R&D shall be reported to the Quality Department of ZTE Corporation for penalty.
4. Informed staff should report the fact including but not limited to the list of breach of major operation on exiting network, as shown below..
5. List of Breach of Major Operation on Exiting Network

|  |  |  |  |
| --- | --- | --- | --- |
| **Classification** | **Breach description** | **Responsbility** | **Penalty class** |
| Service process | Major incident not be reported to Customer Support Center timely. | responsible person and department of representative/local office | Class 1 |
| Service process | Not recover service first but lookup the cause during the period of the major incident. | responsible person and department of representative/local office | Class 1 |
| Service process | Obtain the version for upgrading without online process of the application and approval. | responsible person and department of representative/local office | Class 1 |
| Service process | Abnormal version be applied on the network without being approved. | product support dept. of network service center | Class 2 |
| Service process | Implementation of return plan of major operation fails. | product support dept. of network service center | Class 1 |
| Service process | Not implement the work of monitoring KPI during the peak time of service after the major operation. | responsible person and department of representative/local office | Class 2 |
| Service process | Upgrade the version in secrett, resulting in the attention or complaint of the customer leadership. | responsible person and department of representative/local office | Class 2 |
|  |  |  |  |
| Conduct norm | Enter the equipment room or the network management center of the customer without evidence of permission. | responsible person and department of representative/local office | Class 2 |
| Conduct norm | Implement major operation without evidence of the customers’permission. | responsible person and department of representative/local office | Class 2 |
| Conduct norm | Implement major operation in the daytime without evidence of the customers’permission. | responsible person and department of representative/local office | Class 2 |
| Conduct norm | Disclose the information of super user authority to the customer so that someone could modify data without permission. | responsible person and department of representative/local office, product support dept. of network service center | Class 2 |
| Conduct norm | Disrespect the customers and censure them in strong language for their unreasonable demands, resulting in the customer complaint. | responsible person and department of representative/local office, product support dept. of network service center | Class 2 |
|  |  |  |  |

* 1. Flow Chart
     1. Process of Major Operation of Existing Network



**Figure 1 Process of Major Operation of Existing Network**

* + 1. Process Description of Major Operation of Existing Network

1. Process Description of Major Operation of Existing Network

|  |  |  |  |
| --- | --- | --- | --- |
| Cut out | Cannot be cut out. | | |
| Criteria for entry | Requirements for major operation of existing network appear. | | |
| Imput | Including but not limited to:   * Onsite Service Application * Implementation Plan for Major Operation | | |
| Action description | Action | Role | Contents |
| MO-10  Formulate the “Implementation Plan for Major Operation” | Field support engineer of office and network service center | * 1. Onsite support engineer formulates the “Implementation Plan for Major Operation” as per the field situation.   2. “Implementation Plan for Major Operation” shall be formulated according to requirements of this SOP. |
| MO\_20  Approve the “Implementation Plan for Major Operation” | Support expert of network service center | * 1. Remote Support expert of network service center approves the “Implementation Plan for Major Operation” technically, complete the plan to ensure its integration, accuracy and operability. |
| MO\_30  Apply for onsite Service | Field support engineer of office and network service center | * 1. After the remote technical support expert finishes approving the “Implementation Plan for Major Operation”, field support engineer will submit the “Onsite Service Application” (including the implementation plan) to the customer for approval and specific implementation time of the major operation. |
| MO\_40  Approve the onsite service application. | Customer | * 1. The customer confirms whether a major operation needs to be implemented as per the actual situation, if the answer is no, the whole process ends here. |
| MO\_50  Report major operation. | Field support engineer of office and network service center | * 1. After being approved by the customer, Field support engineer should inform the network service center in time.   2. Field support engineer should make related preparation according to the requirement of the “Implementation Plan for Major Operation”. |
| MO\_60  Assign support expert | support expert of customer service center | * 1. The network service center assigns remote support expert, and R&D expert shall be assigned for the major operation with high risk.   2. Remote support engineer should make related preparation according to the requirement of the “Implementation Plan for Major Operation”.   3. The network service center takes charge of issuing the notice of major operation to the network service center, product line, R&D institute and the sales division. |
| MO\_70  Deploy meeting | Onsite responsible leader | * 1. The responsible leader should put the deployment of major operation in place and call a meeting with the related person.   2. Leader being responsible on site should be comfirmed, and it should be decided whether the leader gives on-site instruction or remote guidance.   3. The on-site staff and remote support expert should make a good communication and coordination with each other. |
| MO\_80  Implement major operation | Field support engineer of office and customer service center | It ‘s the actual operation phase.   * 1. Implement the major operation within the stipulated time according to the customer negotiation result as well as the approved “Implementation Plan for Major Operation” .   2. The requirements are as follows:  1. It shall be implemented strictly according to the procedures of “Implementation Plan for Major Operation”. 2. It shall be implemented during the light traffic time which is usually 0：00-5：00. Attention should be paid to the time difference in the areas like Xinjiang, etc. 3. Adopt the emergency plan in time according to the required conditions. 4. Close communication should be kept with the remote support expert in China.    1. After the major operation, service test should be made to the existing network. Extract and analyze the network KPI and confirm whether they are normal.    2. The major operation will be regarded as a failed one if it cannot be judged whether the major operation succeeds after scheduled operation window. It should be submitted to the customer for confirmation of return. |
| MO\_85  Confirm to return | Customer | * 1. If the service test and KPI are judged as abnormal by both the onsite and remote expert, and it conforms to the return condition, onsite support engineer should submit to the customer for final dicision and return confirmation. |
| MO\_90  Support and guarantee major operation | Support expert of network service center | * 1. During the onsite major operation, sub-center support expert should assist the onsite engineer to locate the problem and ensure the successful upgrade. |
| MO\_100  Implement the return plan. | Field support engineer of office and network service center | * 1. If the customer makes the final dicision to return, field support engineer should implement the return plan and complete the return operation.   2. After the return has been implemented, service test and KPI judgment should still be carried out until the existing network recovers to normal operation. |
| MO\_110  Extract KPI for analysis and feed back to Sub-center | Field support engineer of office and network service center | * 1. No matter the major operation is successful or returned, field engineer should extract the latest KPI for further analysis and return them to sub-center for assistant analysis. |
| MO\_120  Analyze network KPI | Support expert of network service center | * 1. The sub-center remote support expert and field support engineer analyze the network KPI and process if any exception occurs.   2. Field support engineer should monitor the network performance so as to understand the dynamic network operation status. |
| MO\_130  Issue the result of major operation | Support expert of network service center | * 1. If the system operation is confirmed to be stable after monitoring and analyzing the network KPI, or the network recovers to normal operation after the emergency processing, the support expert of network service center will issue the major operation result |
| MO\_140  Deal with the aftermath of failed major operation | Onsite responsible leader | * 1. On-site responsible leader should carry out necessary processing according to the major operation result.   2. If the major operation fails, the responsible leader should provide assistance to on-site engineer to deal with the aftermath of failure. If the failure of major operation made a great impact, involving the Group level, It shall be informed to service director, and reported to manager of engineering service dept., deputy general manager for engineering of the marketing division to deal with the problem finally and summarize the lesson and learn from experience in time. |
| MO\_150  Major Operation Failure Analysis and Report | Field support engineer of office and network service center | * 1. Immediately inform the sub-center remote support expert of the major operation failure, embark on failure analysis and report.   2. Immediately inform related leaders of representative office that the major operation has failed. Related leaders should immediately organize corresponding coordination.   3. Immediately inform the product director of engineerng service dept. of the failure of the major operation, and the product director should immediately assist to organize corresponding coordination. |
| MO\_160  Summary report of major operation | Field support engineer of office and customer service center | * 1. After finishing the major operation, onsite support engineer should carrry out timely summary and submit the “Onsite Service Report” to the customer. |
| Monitor the onsite major operation. | Product director of engineering service dept. | * 1. The product director of engineering service dept. should understand the major operation for the existing network and pay attention to those important ones. |
| Emergency Problem Handling Process | Field support engineer of office and customer service center | * 1. If any exception is discovered, the emergency problem handling process should be activated immedialtely so as to solve the problem ASAP and ensure the stable network. |
| Understand and handle the after-process according to the result | Product director of engineering service dept. | * 1. The product director of engineering service dept. will carry out necessary processing according to the major operation result.   2. If the major operation fails, he will assist the onsite engineer to make coordination. If the failure has a huge impact, he will inform the servcie director and report to the general manager of engineering service dept. and deputy general manager for engineering of the marketing division. Finish the problem processing and make timely conclusion of experience and lessons. |
| Criteria for output | The following major tasks have been completed:  Implementation of major operation for existing network, system recovery and stable operation | | |
| Output | Onsite Service Report | | |
| Roles of participants | Field suport engineer of office and customer service dept., remote support expert of customer service dept.and product director of engineering service dept. | | |
| Tools | Notes, telephone, etc. | | |