Network Characterising Methodology

- 1. Characterise the Customer's applications
- 2. Characterise the network protocols
- **3.** Document the Customer's current network
- 4. Identify potential bottlenecks
- 5. Identify business constraints and inputs to your network design
- 6. Characterise the existing network availability
- 7. Characterise the network performance
- 8. Characterise the existing network reliability
- 9. Characterise network utilisation
- 10. Characterise the status of the major routers
- 11. Characterise the existing network management systems and tools
- 12. Summarise the health of the existing internetwork

Customer's Applications

| Name of Application | Type of Application | Number of Users | Number of Hosts/Servers | Comments |
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Network Protocols

| Name of Protocol | Type of Protocol | Number of Users | Number of Hosts/Servers | Comments |
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Customer's Current Network

Network Topology - Addressing Schemes - Concerns about the Network

| Identify Potential Bottlenecks | · Characterising | Traffic that is Not Local |
|---------------------------------------|------------------|---------------------------|
|---------------------------------------|------------------|---------------------------|

| Network Segment Identification | Both Source and Destination are | Source is Local, Destination is | Source is Not Local, Destination | Source is Not Local, Destination | |
|--------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|--|
| | Local | Not Local | is Local | is Not Local | |
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Identify Business Constraints and Inputs to Your Network Design

I understand the corporate structure

I have analysed the information flow in the corporation The Customer has identified any mission-critical data or operations The Customer has explained any policies regarding approved vendors, protocols, or platforms The Customer has explained any policies regarding open versus proprietary solutions The Customer has explained any policies regarding distributed authority for network design and implementation: for example, departments that control their own internetworking purchases I have a good understanding of the technical expertise of my clients I have researched the Customer's industry and competition I aware of any politics that might affect the network design proposal I am aware of any financial constraints that may influence the network design

Document concerns about the Customers business constraints

Characterising the Existing Network Availability

| Network/Segment | MTBF | Date of Last Downtime | Duration of Last Downtime | Cause of Last Downtime |
|-----------------|------|-----------------------|---------------------------|------------------------|
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Network Characterising Methodology – Svenn Derrick

Characterise the Network Performance

| | Host A | Host B | Host C | Host D |
|--------|--------|--------|--------|--------|
| Host A | | | | |
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| Host B | | | | |
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| Host C | | | | |
| Host C | | | | |
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| Host D | | | | |
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Characterise the Existing Network Reliability

| Network Segment | Average Network | Peak Network | Average frame Size | CRC Error Rate | MAC layer Error | Broadcasts/Multicasts |
|-----------------|-----------------|--------------|--------------------|----------------|-----------------|-----------------------|
| | Utilisation | Utilisation | | | Rate | Rate |
| Segment 1 | | | | | | |
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| Segment 2 | | | | | | |
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| Segment 3 | | | | | | |
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| Segment 4 | | | | | | |
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Characterise Network Utilisation

| Protocol | Relative Network Utilisation | Absolute Network Utilisation | Average Frame Size | Broadcasts/Multicasts Rate |
|-----------|------------------------------|------------------------------|--------------------|----------------------------|
| IP | | | | |
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| | | | | |
| IPX | | | | |
| | | | | |
| | | | | |
| AppleTalk | | | | |
| | | | | |
| | | | | |
| NetBIOS | | | | |
| | | | | |
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| SNA | | | | |
| | | | | |
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| Other | | | | |
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Characterise the Status of the Major Routers

| Router Name | 5-Minute CPU | Output Queue Drops | Input Queue Drops | Missed Packets Per | Ignored Packets Per | Comments |
|-------------|--------------|--------------------|-------------------|--------------------|---------------------|----------|
| | Utilisation | Per Hour | Per Hour | Hour | Hour | |
| Router 1 | | | | | | |
| Router 2 | | | | | | |
| Router 3 | | | | | | |
| Router 4 | | | | | | |

Characterise the Existing Network Management Systems and Tools

Platform - Network management Tools in use - Daily/Weekly/Monthly Reports

Summarise the Health of the Existing Internetwork

No shared Ethernet segments are saturated (no more than 40 % network utilisation) No shared Token Ring segments are saturated (no more than 70% network utilisation) No WAN links are saturated (no more than 70% network utilisation) The response time is generally less than 100 milliseconds (1 millisecond = 1/1000 of a second; 100 milliseconds = 1/10 of a second) No segments have more than 20 % broadcasts/multicasts No segments have more than one CRC error per million bytes of data On the Ethernet segments, less than 0.1 % of the packets result in collisions On the Token Ring segments, less than 0.1 % of the packets are soft errors not related to ring insertion On the FDDI segments, there has been no more than one ring operation per hour not related to ring insertion The Cisco routers are not over-utilised (5-Minute CPU Utilisation) no more than 75% The number of output queue drops has not exceeded more than 100 in an hour on any Cisco router The number of input queue drops has not exceeded more than 50 in an hour on any Cisco router The number of Buffer misses has not exceeded more than 25 in an hour on any Cisco router The number of ignored packets has not exceeded more than 10 in an hour on any interface on a Cisco router

Document any concerns you have about the health of the existing network and its capability to support growth