MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of Avaya MultiVantage S8700, DEFINITY G3R and G3SI Digital Switching Systems with Software Release R011.7585.7.0.2 and Software Patch # 6153

References: (a) DOD Directive 4630.5, “Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS),” 11 January 2002

(b) CJCSI 6212.01C, “Interoperability and Supportability of National Security Systems and Information Technology Systems,” 20 November 2003

1. References (a) and (b) establish the Defense Information Systems Agency (DISA), Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification. Additional references are provided in enclosure 1.

2. The Avaya MultiVantage S8700 Digital Switching System with Software Release R011x.7585.7.0.2 and Software Patch # 6153, hereinafter referred to as the system under test (SUT), meets all of its critical interoperability requirements, and is certified as interoperable for joint use within the Defense Switched Network (DSN). The identified test discrepancies shown in reference (c) that remained open after software patches were applied and regression testing was completed have an overall minor operational impact. The Avaya DEFINITY G3R and G3SI Digital Switching Systems employ the same software and trunk/line card hardware as the SUT; JITC analysis determined the G3R and G3SI to be functionally identical for interoperability certification purposes. The switching systems and their respective software releases covered under this certification are listed in table 1. The SUT was tested and met the critical interoperability requirements for the following DSN switch types: Small End Office, Private Branch Exchange (PBX) 1 and PBX 2. This certification expires upon changes that could affect interoperability, but no later than three years from the date of this memorandum.

3. This finding is based on interoperability testing of the Avaya MultiVantage S8700 Digital Switching System with Software Release R011.7585.7.0.2 conducted by JITC and certified on 17 October 2003 as shown in reference (c), and regression testing of Software Patch # 6153 conducted 8 through 12 December 2003 at the JITC facility at Ft. Huachuca, AZ. The test results and tested network and systems configurations can be found in enclosure 2 of reference
JITC, Memo, Networks and Transport Division (JTE), Special Interoperability Test Certification of Avaya MultiVantage S8700, DEFINITY G3R and G3SI Digital Switching Systems with Software Release R011.7585.7.0.2 and Software Patch # 6153

(c). System interoperability should be verified before deployment in an operational environment that varies significantly from the test environment.

4. The interoperability summary of the SUT is indicated in table 2. The interoperability status and criticality are listed in table 3, Exchange Requirements (ERs) and Functional Requirements (FRs) for the DSN are listed in table 4, and description of Software Patch # 6153 is shown in table 5. The Avaya switch product line offers a Remote Switch Unit capability referred to as the Survivable Remote Processor Expansion Port Network. This product line also offers a Voice over Internet Protocol capability. Preliminary testing was performed on these capabilities, but neither is covered by this certification. Network Management (NM) capabilities of the SUT platform were tested in accordance with the DISA NS53 requirements as set forth in references (d) and (e). These references require that a switch provide NM capabilities via either Ethernet, serial (EIA-232), or serial (X.25 or BX.25 variant). The SUT meets the NM requirements through the use of either serial (EIA-232) or Ethernet connection as shown in reference (c). This interoperability test status is based upon evaluation of:


b. The interface and signaling requirements for trunk/line interfaces, and interoperability ERs and FRs derived from references (g) and (h).

c. The overall system interoperability performance derived from test procedures listed in reference (i).

d. Review of Letters of Compliance submitted by Avaya.

Table 1. Certified Avaya DEFINITY Software Releases

<table>
<thead>
<tr>
<th>Software Release</th>
<th>Software Medium</th>
<th>Switch Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>R011x.7585.7.0.2 (See note)</td>
<td>Optical Disk</td>
<td>MultiVantage S8700</td>
</tr>
<tr>
<td>R011r.7585.7.0.2 (See note)</td>
<td>Optical Disk</td>
<td>DEFINITY G3R</td>
</tr>
<tr>
<td>R011i.7585.7.0.2 (See note)</td>
<td>PCMCIA</td>
<td>DEFINITY G3SI</td>
</tr>
</tbody>
</table>

Legend:
PCMCIA – Personal Computer Memory Card International Association

Note:
The software is the same; however, Avaya distinguishes the different media and platforms by the fifth character of the Software Release (e.g. x, r, i).
Table 2. MultiVantage S8700, DEFINITY G3R and G3SI Digital Switching Systems Interoperability Summary

<table>
<thead>
<tr>
<th>Network</th>
<th>Critical</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
</table>
| DSN                      | Yes      | Certified | - VoIP not certified  
- Certified as SMEO & PBX1  
- RSU not certified  
- E1 CAS and CDC certified (DISN-E only)  
- The identified test discrepancies shown in enclosure (2) of reference (c) that remained open have an overall minor operational impact. |
| DRSN Gateway             | Yes      | Certified | - All critical requirements met |
| Tactical Gateway         | No       | Certified | - All critical requirements met |
| NATO Gateway             | No       | Not Tested | |
| Commercial Gateway       | Yes      | Certified | - All critical requirements met |

Legend:
- CAS - Channel Associated Signaling  
- CDC - Common Data Channel  
- DISN-E - Defense Information System Network Europe  
- DRSN - Defense Red Switch Network  
- DSN - Defense Switched Network  
- E1 - European Basic Rate (2.048 Mbps)  
- Mbps - Megabits per second  
- NATO - North Atlantic Treaty Organization  
- PBX1 - Private Branch Exchange 1  
- RSU - Remote Switching Unit  
- SMEO - Small End Office  
- SMEO - Small End Office  
- VoIP - Voice over Internet Protocol  

Table 3. Interoperability Status

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Critical</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trunk Interfaces</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| PCM-24 T1 (B8ZS/ESF)  | No       | Certified | Met all critical ERs and FRs.  
(AMI/SF) CAS MFR1            |          |                                                                         |
| PCM-24 T1 (B8ZS/ESF)  | Yes      | Certified | Met all critical ERs and FRs.  
(AMI/SF) CAS MFR1            |          |                                                                         |
| PCM-24 T1 (B8ZS/ESF)  | Yes      | Certified | Met all critical ERs and FRs.  
(AMI/SF) CAS MFR1            |          |                                                                         |
| PCM-30 E1 CAS HDB3 MFR1| No       | Certified | Met all critical ERs and FRs.  
PRI            |          |                                                                         |
| Analog E&M Signaling Type I | No | Certified | Met all ERs and FRs. |
| **Line Interfaces**   |          |         |                                                                         |
| TPC ISDN BRI ST and U  | Yes      | Certified | Met all critical ERs and FRs.  
Interface Q.931               |          |                                                                         |
| TPC 2-Wire analog      | Yes      | Certified | Met all critical ERs and FRs.  
(Proprietary)               |          |                                                                         |
| TPC 2-Wire Digital     | No       | Certified | Met all ERs and FRs except for full compliance of DSN Announcements. Operational impact is minor.  
(Proprietary)               |          |                                                                         |
| **Network Management Interfaces** | |         |                                                                         |
| CAT 5 TPC IEEE 802.3 10BaseT Ethernet, TCP/IP | No | Certified | Met all ERs and FRs. |
| TPC EIA232 Asynchronous | No | Certified | Met all ERs and FRs. |
| TPC X.25 or BX.25 Synchronous | No | Not Tested | |
### Table 3. Interoperability Status (continued)

<table>
<thead>
<tr>
<th>Defense Red Switch Network Gateway</th>
<th>Interface &amp; Signaling</th>
<th>Critical</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-Wire Analog Loop</td>
<td>Yes</td>
<td>Certified</td>
<td>Met all critical ERs and FRs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tactical Network Gateway</th>
<th>Interface &amp; Signaling</th>
<th>Critical</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1</td>
<td>No</td>
<td>Certified</td>
<td>Met all ERs and FRs.</td>
<td></td>
</tr>
<tr>
<td>PCM-30 E1 HDB3 CAS MFR1</td>
<td>No</td>
<td>Certified</td>
<td>Met all ERs and FRs.</td>
<td></td>
</tr>
<tr>
<td>Analog E&amp;M Signaling Type I</td>
<td>No</td>
<td>Certified</td>
<td>Met all ERs and FRs.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NATO Gateway</th>
<th>Interface &amp; Signaling</th>
<th>Critical</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Not Tested</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commercial Network Gateway</th>
<th>Interface &amp; Signaling</th>
<th>Critical</th>
<th>Status</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same Interfaces and Signaling as DSN</td>
<td>Yes</td>
<td>Certified</td>
<td>See note 5.</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- 10BaseT - Ethernet Based Operation, Twisted Pair
- ANSI - American National Standards Institute
- B8ZS - Bipolar Eight Zero Substitution
- CAS - Channel Associated Signaling
- CAT - Category
- DP - Dial Pulse
- DTMF - Dual Tone Multi-Frequency
- E1 - European Basic Rate (2.048 Mbps)
- E&M - Ear and Mouth
- EIA - Electronic Industries Alliance
- ERs - Exchange Requirements
- ESF - Extended Superframe
- FRs - Functional Requirements
- GSCR - Generic Switching Center Requirements
- GSTP - Generic Switch Test Plan
- HDH3 - High Density Bi-Polar Three
- IEEE - Institute of Electrical and Electronic Engineering, Inc.
- ISDN - Integrated Services Digital Network
- kbps - kilobits per second
- Mbps - Megabits per second
- NM - Network Management
- PCM-24 - Pulse Code Modulation 24 Channels
- PCM-30 - Pulse Code Modulation 30 Channels
- PRI - Primary Rate Interface
- SF - Superframe
- ST - ISDN BRI Four-Wire Interface
- SUT - System Under Test
- T1 - Digital Transmission Link level 1 (1.544 Mbps)
- TCP/IP - Transmission Control Protocol/Internet Protocol
- TPC - Twisted Pair Copper
- U - ISDN BRI Two-Wire Interface

Notes:
1. The SUT will not allow calls between unlike DSN service domains when resources are available. The SUT meets the minimum requirements defined in reference (h). The operational impact is minor.
2. ISDN Supplemental Services currently not used in the DISN. The operational impact is none.
3. Met all ANN Announcement requirements except for Isolation Code Announcement. The SUT provides this announcement only for precedence calls above ROUTINE. ROUTINE precedence calls receive a fast busy signal.
4. References (d) and (e) require that a switch provide NM capabilities via either Ethernet, serial (EIA-232), or serial (X.25 or BX.25 variant). The SUT meets the NM requirements through the use of either serial (EIA-232) or Ethernet connection.
5. The certification/compliance of interoperability to commercial networks was satisfied based on the review of the vendor’s letter of compliance to requirements identified as the “L” and “V” items listed in appendix E of the GSTP and specified in tables 2-1 through 2-15 of the GSCR.
Table 4. Exchange and Functional Requirements

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Trunk Interfaces</th>
<th>Exchange &amp; Functional Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DTMF</td>
<td>- MLPP</td>
<td>- Hotline Services</td>
</tr>
<tr>
<td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1</td>
<td>- Non-secure Voice and Data</td>
<td></td>
</tr>
<tr>
<td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS DP</td>
<td>- Secure Voice and Data (STU-III and STE)</td>
<td></td>
</tr>
<tr>
<td>PCM-30 E1 CAS</td>
<td>- NX56 kbps and NX64 kbps Synchronous Data</td>
<td></td>
</tr>
<tr>
<td>HDB3 MFR1</td>
<td>- Non-secure and Secure FAX</td>
<td></td>
</tr>
<tr>
<td>PCM-24 T1 B8ZS/ESF ISDN PRI</td>
<td>- VTC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Alarms</td>
<td></td>
</tr>
</tbody>
</table>

Analog E&M Signaling Type I

- Integrated Services Digital Network (ISDN PRI only)
- Attendant Services
- System Administration, Measurements, and Service Standards
- Y2K (Rollover, Valid and Invalid Dates)
- Screening, Zone Restriction, and DSN Access Restriction
- Automated Message Accounting
- Network Integration
- Common Data Channel (T1 and E1 CAS only)
- ANSI T1.619a (T1 ISDN PRI)

Defense Switched Network

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Line Interfaces</th>
<th>Exchange &amp; Functional Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPC ISDN BRI ST and U Interface Q.931</td>
<td>- MLPP</td>
<td>- Hotline Services</td>
</tr>
<tr>
<td></td>
<td>- ANSI T1.619a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ISDN Supplemental Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Call Treatments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- DSN Announcements</td>
<td></td>
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<tr>
<td></td>
<td>- Attendant Services</td>
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<tr>
<td></td>
<td>- EKTS</td>
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<tr>
<td></td>
<td>- VTC</td>
<td></td>
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<tr>
<td></td>
<td>- NX56 kbps and NX64 kbps Synchronous Data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Non-secure Voice and Data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Secure Voice and Data (STE)</td>
<td></td>
</tr>
</tbody>
</table>

TPC 2-Wire analog

- MLPP
- Hotline Services
- DSN Announcements
- Traffic Measurements
- Attendant Services
- Call Treatments
- Non-secure Voice and Data
- Non-secure and Secure FAX
- Secure Voice and Data (STU-III and STE)

TPC 2-Wire Digital and Analog (Proprietary)

- MLPP
- Hotline Services
- DSN Announcements
- Traffic Measurements
- Attendant Services
- Call Treatments
- Non-secure Voice

JITC, Memo, Networks and Transport Division (JTE), Special Interoperability Test Certification of Avaya MultiVantage S8700, DEFINITY G3R and G3SI Digital Switching Systems with Software Release R011.7585.7.0.2 and Software Patch # 6153
### Table 4. Exchange and Functional Requirements (continued)

<table>
<thead>
<tr>
<th>Network Management Interfaces</th>
<th>Exchange &amp; Functional Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT 5 TPC IEEE 802.3 10BaseT Ethernet, TCP/IP</td>
<td>- Automated Message Accounting</td>
</tr>
<tr>
<td></td>
<td>- Traffic Measurements</td>
</tr>
<tr>
<td></td>
<td>- Alarms (TCP/IP interface only)</td>
</tr>
<tr>
<td></td>
<td>- Man Machine Language</td>
</tr>
<tr>
<td>TPC EIA232 Asynchronous @ 9.6 kbps</td>
<td></td>
</tr>
</tbody>
</table>

#### Defense Red Switch Network Gateway

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Exchange &amp; Functional Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPC 2-Wire analog</td>
<td>- MLPP</td>
</tr>
<tr>
<td></td>
<td>- Secure Voice (STU-III &amp; STE)</td>
</tr>
</tbody>
</table>

#### Tactical Network Gateway

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Exchange &amp; Functional Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM-24 T1 (B8ZS/ESF) (AMI/SF) CAS MFR1</td>
<td>- MLPP</td>
</tr>
<tr>
<td>PCM-30 E1 HDB3 CAS MFR1 Analog E&amp;M Signaling Type 1</td>
<td>- Non-secure Voice</td>
</tr>
</tbody>
</table>

#### NATO Gateway

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Exchange &amp; Functional Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not tested</td>
<td>See note 2.</td>
</tr>
</tbody>
</table>

#### Commercial Network Gateway

<table>
<thead>
<tr>
<th>Interface &amp; Signaling</th>
<th>Exchange &amp; Functional Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same Interfaces and Signaling as DSN</td>
<td>See note 3.</td>
</tr>
</tbody>
</table>

**Legend:**
- 10BaseT - Ethernet Based Operation, Twisted Pair
- ANSI - American National Standards Institute
- B8ZS - Bipolar Eight Zero Substitution
- CAS - Channel Associated Signaling
- CAT - Category
- DP - Dial Pulse
- DSN - Defense Switched Network
- DTMF - Dual Tone Multi-Frequency
- E1 - European Basic Multiplex Rate (2.048 Mbps)
- E&M - Ear and Mouth
- EIA - Electronic Industries Alliance
- EKTS - Electronic Key Telephone Service
- ESF - Extended Superframe
- FAX - Facsimile
- GSCR - Generic Switching Center Requirements
- GSTP - Generic Switch Test Plan
- IEEE - Institute of Electrical and Electronic Engineering, Inc.
- ISDN - Integrated Services Digital Network
- kbps - kilobits per second
- Mbps - Megabits per second
- MFR1 - Multi-Frequency R1
- MLPP - Multi-Level Precedence and Preemption
- MX - Multiplex Rate
- NX56 - Data format restricted to multiples of 56 kbps
- NX64 - Data format restricted to multiples of 64 kbps
- PRI - Primary Rate Interface
- PSTN - Public Switched Telephone Network
- Q.SIG - Quality of Service Signaling
- SF - Superframe
- SUT - System Under Test
- T1 - Digital Transmission Link level 1 (1.544 Mbps)
- TCP/IP - Transmission Control Protocol/Internet Protocol
- U - ISDN BRI Two-Wire Interface
- VTC - Video Teleconferencing
- Y2K - Year 2000

**Notes:**
1. SUT meets all the GSCR exchange requirements for attendant services with the following console: Lucent Attendant Console Model 302C.
2. NATO interface requirements are in accordance with the GSCR paragraph 10.8. Not all switches are required to perform this function.
3. The certification/compliance of interoperability to commercial networks was satisfied based on the review of the vendor’s letter of compliance to requirements identified as the “L” and “V” items listed in appendix E of the GSTP and specified in tables 2-1 through 2-15 of the GSCR.
JITC, Memo, Networks and Transport Division (JTE), Special Interoperability Test Certification of Avaya MultiVantage S8700, DEFINITY G3R and G3SI Digital Switching Systems with Software Release R011.7585.7.0.2 and Software Patch # 6153

**Table 4. Software Patch # 6153 Description**

<table>
<thead>
<tr>
<th>Software Patch #</th>
<th>Patch Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6153</td>
<td>1. Deletion of the MLPP ANSI T1.619a information elements on a non-DSN ISDN PRI Trunkgroup (DSN Term=No). 2. Allows for Remote Access with PIN from DSN to local commercial extensions.</td>
</tr>
</tbody>
</table>

ANSI - American National Standards Institute  
DSN - Defense Switched Network  
ISDN - Integrated Services Digital Network  
Mbps - Megabits per second  
MLPP - Multi-Level Precedence and Preemption  
PIN - Personal Identification Number  
PRI - Primary Rate Interface  
T1 - Digital Transmission Link level 1 (1.544 Mbps)


6. The JITC point of contact is Mr. John Gese, DSN 879-5164 commercial (520) 538-5164, FAX DSN 879-4347, or e-mail to gesej@fhu.disa.mil.

![Signature](signature.png)

1. Enclosure:

   Additional References  
   LESLIE CLAUDIO  
   Chief  
   Networks and Transport Division

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Joint Staff J6I, Room-1E833, Pentagon, Washington, DC 20318-6000  
Joint Staff J6E, Room-1E834, Pentagon, Washington, DC 20318-6000  
Joint Interoperability Test Command, Washington Operations Division, NSWC, ATTN: JTCA-IPTP, Building 900, 101 Strauss Avenue, Indian Head, MD 20640-5035  
Office of Chief of Naval Operations (N612T2), 2000 Navy Pentagon, Washington, DC 20350  
Deputy Chief of Staff for Communications and Information, AF/XI, 1250 Air Force Pentagon, Washington, DC 20330-1250  
Department of the Army, Office of the Secretary of the Army, CIO/G6, Office Symbol SAIS-IOE-A, 107 Army Pentagon DISC4, Washington, DC 20310
JITC, Memo, Networks and Transport Division (JTE), Special Interoperability Test Certification of Avaya MultiVantage S8700, DEFINITY G3R and G3SI Digital Switching Systems with Software Release R011.7585.7.0.2 and Software Patch # 6153

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Defense Intelligence Agency/DS-CIO, Building 6000, Bolling AFB, Washington, DC 20340-3342
DOT&E, Strategic and C3I Systems, 1700 Defense Pentagon, Washington, DC 20301-1700
United States Coast Guard, COMDT/G-SCE (C4), 2100 2nd Street SW, Washington, DC 20593
Office of Assistant Secretary of Defense, C3I (C4ISR & Space Programs)/C3 Directorate,
Crystal Mall 3, 7th Floor, Suite 7035, 1931 Jefferson Davis Highway, Arlington, VA 22202
Deputy Director for I/O Testing, Office of Under Secretary of Defense, AT&L Interoperability,
Room 3E144, Pentagon, Washington, DC 20301
United States Joint Forces Command, J6I, C4 Plans and Policy, 1562 Mitscher Ave, Norfolk, VA 23551-2488
Commander, Defense Information Systems Agency (DISA), ATTN: NS53 (Mr. Osman), Room 5w23, 5275 Leesburg Pike (RTE 7) Falls Church, VA 22041
ADDITIONAL REFERENCES

(c) Joint Interoperability Test Command Memorandum, Networks, Transmission and Integration Division (JTE), “Joint Interoperability Test Certification of Avaya MultiVantage S8700 Digital Switching System with Software Release R011.7585.7.0.2,” 17 October 2003


(e) Defense Information Systems Agency (DISA) NS53, Memorandum, “DSN Network Management Requirements for End Offices,” 2 August 2001

(f) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01B, “Policy for Department of Defense Voice Services,” 23 September 2001


(i) Joint Interoperability Test Command, “Defense Switched Network Generic Switch Test Plan (GSTP),” 17 June 1999