

# Image Cover Sheet

**CLASSIFICATION**

**SYSTEM NUMBER**

508103

UNCLASSIFIED



**TITLE**

ATM RESEARCH AND DEVELOPMENT ACTIVITIES IN CANADA

**System Number:**

**Patron Number:**

**Requester:**


**Notes:** Paper #7 contained in Parent Sysnum #508096

**DSIS Use only:**

**Deliver to:** DK





2.7 ATM RESEARCH AND DEVELOPMENT ACTIVITIES IN CANADA  
- MR G R NOURRY



**SOME  
ATM R&D ACTIVITIES  
IN  
CANADA**

**PRESENTED BY  
G.R. NOURRY  
COMMUNICATIONS RESEARCH CENTRE  
OTTAWA, ONTARIO**


**21 SEPTEMBER 1995**



**BRIEFING OUTLINE**

**THIS BRIEFING IS LIMITED TO A COUPLE OF ATM INITIATIVES CURRENTLY TAKING PLACE IN CANADA. THESE WERE SELECTED BECAUSE OF THEIR DIRECT RELEVANCE TO THE ADVANCED INFORMATION SERVICES DEMONSTRATION (AISD) INITIATIVE. MORE INFORMATION ON THESE AND OTHER ATM INITIATIVES IN CANADA IS AVAILABLE THROUGH WEB SERVERS.**

- CANARIE
- CA/EU COOPERATION ARRANGEMENT
- TTCP/ACCORD
- ATM R&D





## CANARIE

- **WHAT IS CANARIE?**
  - AN INDUSTRY LED CONSORTIUM WITH OVER 140 FEE-PAYING MEMBERS
  - A NON-PROFIT ORGANIZATION
  
- **ITS MISSION**
  - TO FACILITATE THE DEVELOPMENT OF CRITICAL ASPECTS OF THE COMMUNICATION INFRASTRUCTURE OF A KNOWLEDGE-BASED SOCIETY AND ECONOMY IN CANADA, AND IN SO DOING TO CONTRIBUTE TO CANADIAN COMPETITIVENESS IN ALL SECTORS OF THE ECONOMY, TO WEALTH AND JOB CREATION AND TO OUR QUALITY OF LIFE.
  
- **CANARIE WAS ESTABLISHED TO FACILITATE THE TRANSITION TOWARDS A KNOWLEDGE-BASED SOCIETY BY STIMULATING R&D AND NEW PRODUCT AND APPLICATION DEVELOPMENT, AND BY FOSTERING STRATEGIC ALLIANCES IN ORDER TO MAINTAIN THE STRENGTH OF CANADA'S IT SECTOR.**



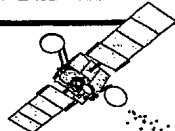
## CANARIE'S NTN

- **NATIONAL TEST NETWORK (NTN)**
  - WORLD'S LARGEST ATM TEST NETWORK?
  - CONNECTS OVER 60 ATM SWITCHES IN 7 REGIONAL TEST NETWORKS
  - CONNECTS OVER 14 UNIVERSITIES, 30 COMPANIES, 6 RESEARCH AND TEACHING HOSPITALS AND HUNDREDS OF RESEARCHERS.
  - SPANS OVER 6000 KM
  - FIRST ATM TEST NETWORK TO CONNECT ACROSS THE ATLANTIC VIA TELEGLOBE AND THE ATM PNO TEST NETWORK AT OC-3 SPEEDS.



**BADLAB**

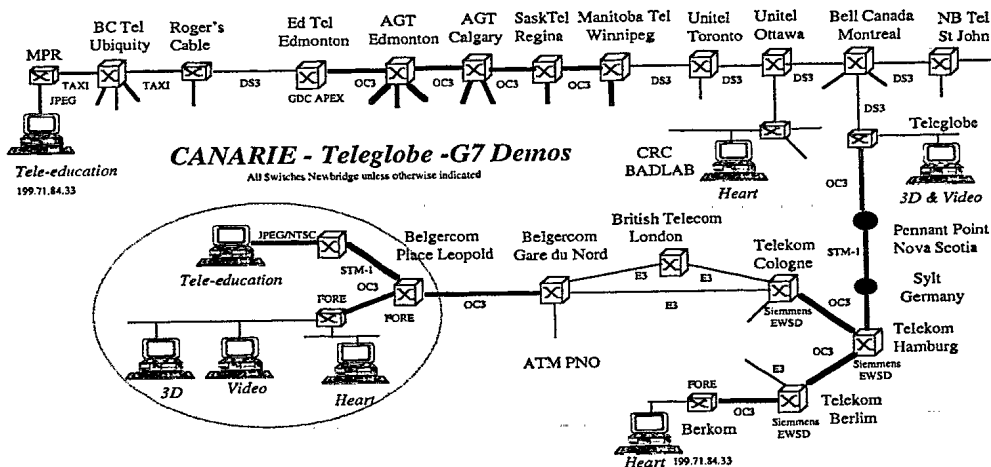
# ATM-Based Networks in Canada



- (1) RNET - British Columbia
- (2) Wurcnet - Western Universities Research Consortium: Calgary/Edmonton
- (3) RISQ - Réseau Inter ordinateurs Scientifique Québécois: Montréal
- (4) CSA - Canadian Space Agency (planned)
- (5) CRC - Communications Research Centre (BADLAB)
- (6) OCRI-net - Ottawa-Carleton Research Institute Network Inc.
- (7) Fundy Cable - Cygnus Technology Ltd., New Brunswick
- (7), (8) ACORN - Atlantic Canada Organization for Research Networking
- (9) LARG-net: London and Region Global Network
- (10) Northwestel
- (11) FASTnet

Canada

CRC 95 6035





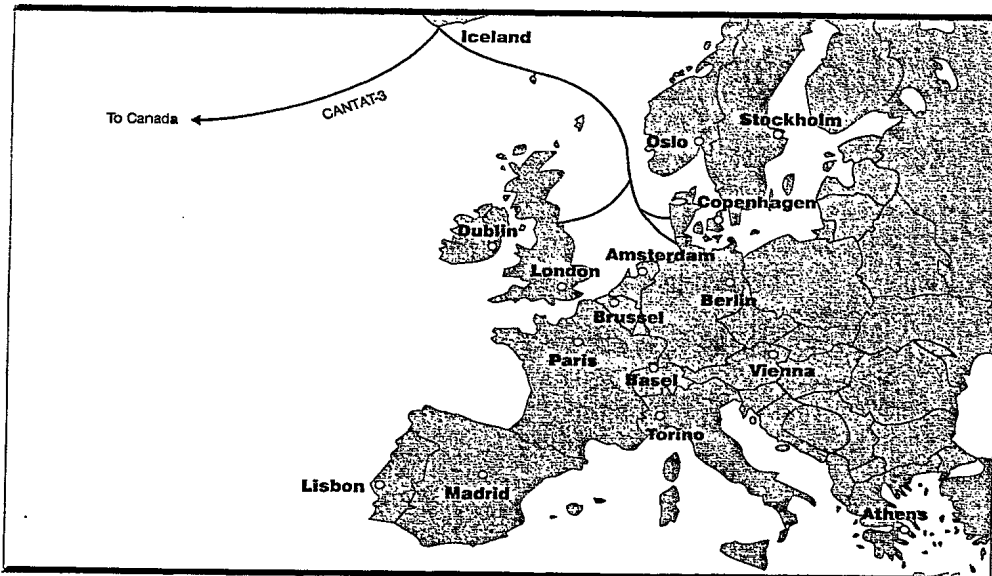
## CA/EU AGREEMENT

- **CA AND EU HAVE NEGOTIATED AN S&T AGREEMENT**
  - CA ORGANIZATIONS ARE ELIGIBLE ON A PROJECT-BY-PROJECT BASIS TO LINK WITH EU CONSORTIA BIDDING ON PROJECTS OF THE EU'S FRAMEWORK R&D PROGRAM AND VICE VERSA.
  - CRC AND OTHER CA ORGANIZATIONS CAN PARTICIPATE IN THE EU'S ACTS PROGRAM.
- **CRC AND TELEGLOBE CANADA (INTERNATIONAL CARRIER) HAVE SIGNED AN AGREEMENT ON BROADBAND COMMUNICATIONS R&D**



~~BADLAD~~

## EU NATIONAL ATM HOSTS



Canada





## CANARIE'S TAD

- **TECHNOLOGY AND APPLICATIONS DEVELOPMENT (TAD) PROGRAM**
  - A SHARED-COST FUNDING PROGRAM WITH THE GOAL OF STIMULATING INNOVATIVE R&D PROJECTS THAT LEAD TO NEW NETWORKING PRODUCTS AND APPLICATIONS
  - TO ACCELERATE THE DEVELOPMENT OF CRITICAL ASPECTS OF CANADA'S COMMUNICATIONS INFRASTRUCTURE
  - 42 PROJECTS COVERING A WIDE SPECTRUM OF TECHNOLOGY AND APPLICATIONS



## TTCP ACCORD

- **ATM COMMAND and CONTROL OPERATIONS RESEARCH AND DEMONSTRATION (ACCORD)**
  - ACCORD IS A FOUR-NATION ATM NETWORK TESTBED TO ENABLE CO-OPERATIVE DEMONSTRATION AND EXPERIMENTATION OF NEW TECHNOLOGIES AND IDEAS RELEVANT TO MILITARY COMMAND AND CONTROL





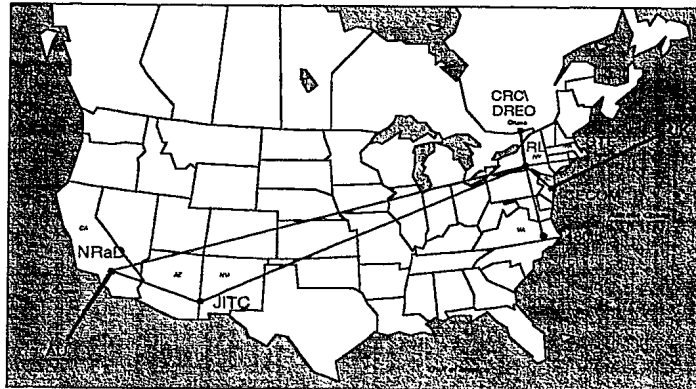
## ACCORD

### • EXPERIMENTS AND DEMONSTRATIONS

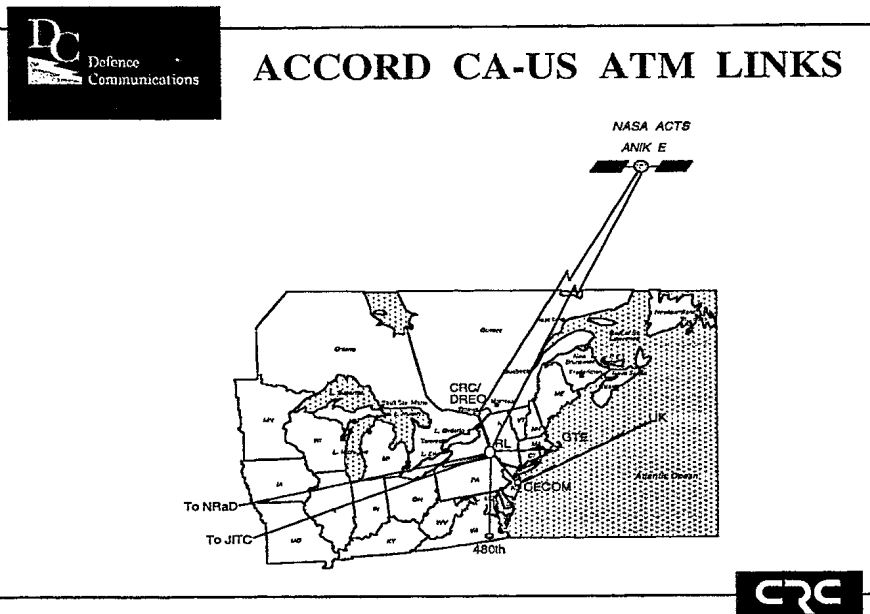
- OPTIMA - A GROUPWARE PRODUCT FOR COALITION FORCES
- MACE - MILITARY APPLICATION OF COTS ENVIRONMENT
- JTIP - THE JOINT TACTICAL INFORMATION PICTURE
- CABP - COALITION AIR BATTLE PLANNING
- DIGITAL LIBRARIES FOR PARALLEL, DIST. INFO. STORAGE
- INFOSEC & ALLIED SECURITY INTEROPERABILITY EXPERIMENTS
- NETWORK MANAGEMENT IN A MULTI-NATIONAL ENVIRONMENT
- JOINT COMMUNICATION PROTOCOL STUDIES
- ATM EXTENSION TO LOWER ECHELON MILITARY OPERATIONS
- COMMUNICATIONS LINK REPLAY SIMULATION
- BASE - BROADBAND ATM SATELLITE EXPERIMENTS
- ATM SATELLITE EXPERIMENTS



## ACCORD ATM TESTBED







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- ### ACCORD
- **BROADBAND ATM SATELLITE EXPERIMENTS (BASE)**
    - DREO/CRC - ROME LAB
    - ANIK E AND NASA ACTS SATELLITES
    - ATM LINK CHARACTERIZATION
      - » SINGLE CHANNEL
      - » MULTIPLE CHANNEL
    - TCP/IP OVER ATM OVER BROADBAND SATELLITE LINK
    - TP4/CLNP OVER ATM BROADBAND SATELLITE LINK
    - HIGH SPEED TRANSPORT PROTOCOL OVER SAME
  - **LINK CHARACTERIZATION COMPLETE OVER BOTH SATELLITES. ENTERING THE TCP/IP TESTING PHASE.**
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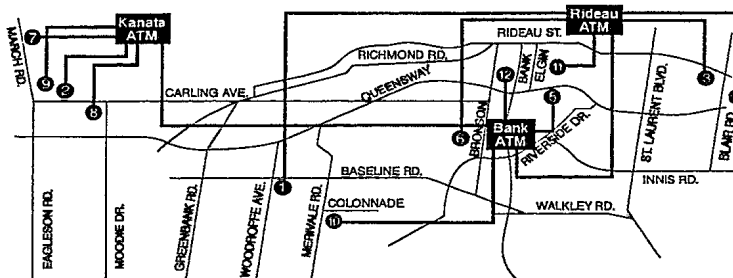
## OTHER ATM ACTIVITIES AT CRC

- ATM EXTENSIONS TO TACTICAL THEATRE
- HIGH SPEED TRANSPORT PROTOCOLS
- VIRTUAL LABS
  - DND RESEARCH, ENGINEERING AND OPERATIONS



**BAILLIE**

## OCRInet MEMBERS

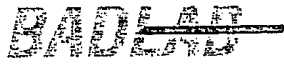


Scale: 1cm = Approximately 1km

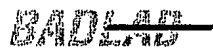
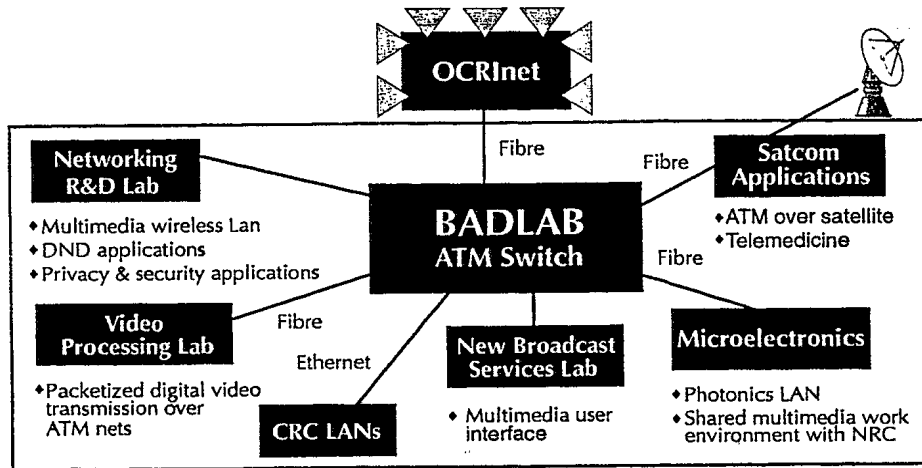
- |                                  |                            |
|----------------------------------|----------------------------|
| ① Algonquin College (Woodroffe)  | ⑦ Newbridge Networks, Inc. |
| ② Communications Research Centre | ⑧ Bell Northern Research   |
| ③ National Research Council      | ⑨ Mitel Corporation        |
| ④ Telesat                        | ⑩ Gandalf                  |
| ⑤ Algonquin College (Lees)       | ⑪ Ottawa University        |
| ⑥ Carleton University            | ⑫ Stentor                  |

Canada





# CRC INTERNAL BROADBAND NETWORK AND APPLICATIONS



## CRC BADLAB NETWORK CONFIGURATION

