

# Ericsson in Canada

Denis Monette

Open System Research Lab

# LOGISTICS

- Security Passes
- Breaks: 10:00 – 10:30 and 15:00 – 15:30
  - Coffee, Tea, Coke, Juice, cookies, ...
- Lunch: 12:00 – 13:30
  - In our cafeteria. Please pick up your coupon.
- Internet Access:
  - DHCP based
  - Direct connection to CA\*net-3 (Canadian extension of Internet-2)

# Ericsson in Canada

- Ericsson Canada Inc.
  - Two operating divisions:
    - Research & Development, centered in Montreal
    - Marketing & Operations, headquartered in Toronto

## Ericsson in Canada



- A wholly owned subsidiary of LM Ericsson AB, Sweden
- Commenced operations in 1953
- Annual sales - \$696M CAN
- Number of employees
  - 1,600 in Research & Development
  - 300 in Marketing and Operations

## Ericsson in Canada

- 
- Ericsson Canada Inc. serves the Canadian market by providing complete communication solutions including Wireless Systems, IP and Data Systems, Mobile Internet Applications and Enterprise Systems.
  - As one of Canada's largest R&D investors, Ericsson develops systems for multiple wireless standards as well as technology for future third generation (3G) telecommunication.

# Ericsson Canada Research & Development Centre

- \$270M CDN in R&D investment in 2001
- Ranked 4th in overall R&D spending in Canada

# Ericsson Canada Research & Development Centre

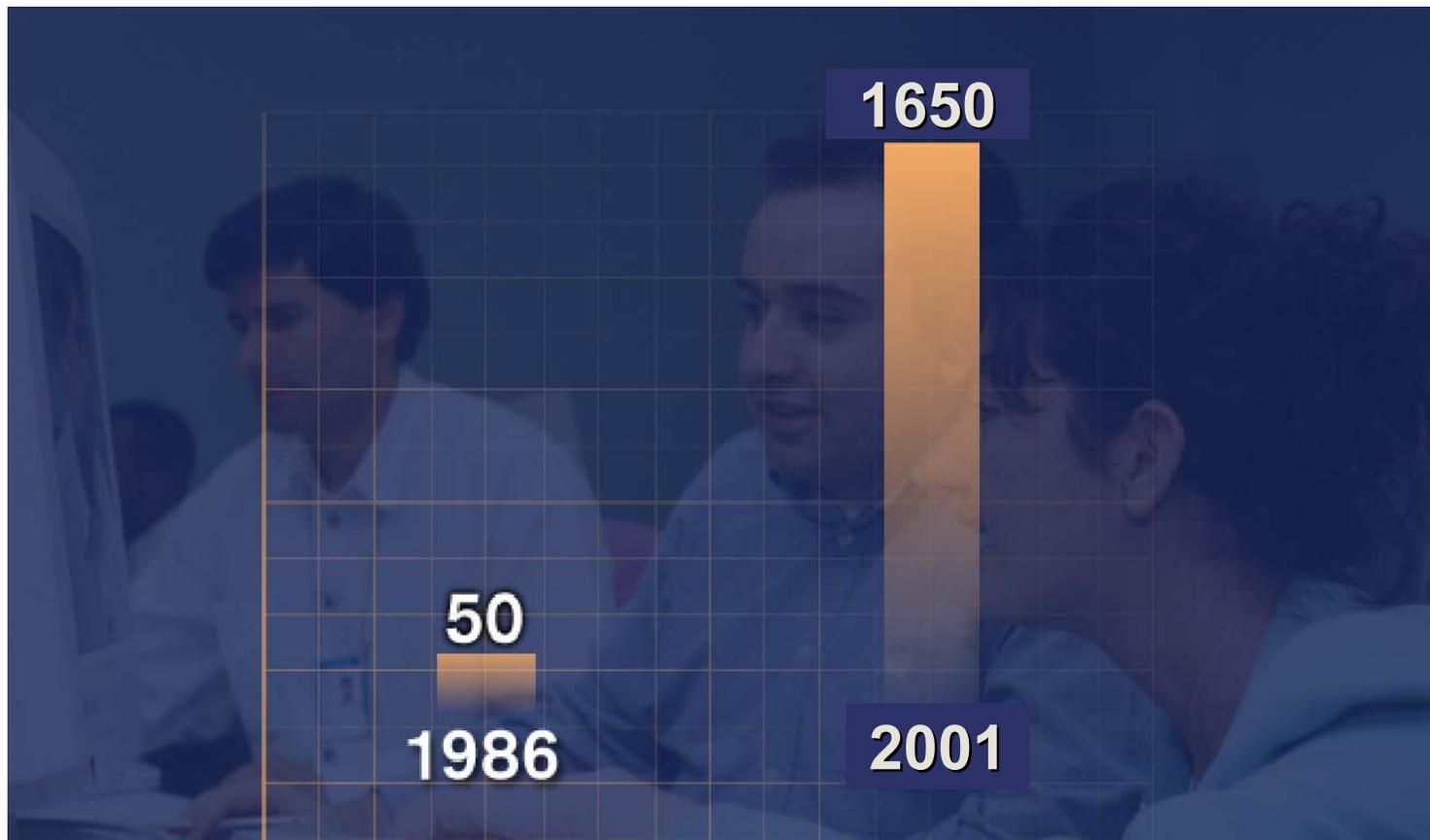


- Recognized for our ability to deliver high quality industrialized product quickly and to provide excellence in service and support to our customers.
- Leveraging our existing competence, we are a leading provider of advanced wireless core network products, services and solutions.
- We are a key contributor to Ericsson of new products and technologies.

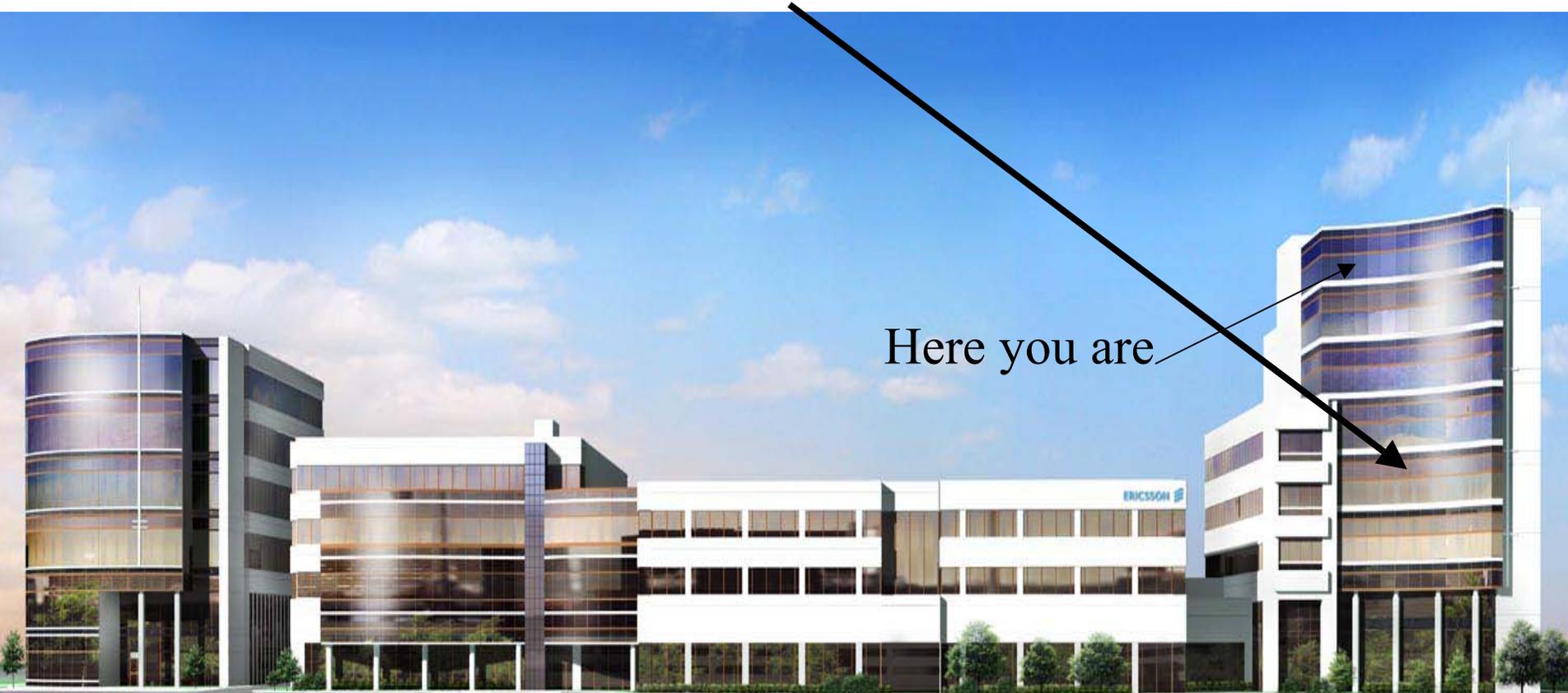
# Research & Development Centre - Our Core Responsibilities

- TDMA Systems
- Product Development Unit for CDMA Core Network
- TSP Applications and Platform Development
- Global Expertise Center
- Product Organizations for:
  - Mobile Internet
  - Prepaid
  - Routers
- IP Research & Development

# Research & Development Centre Employee Growth

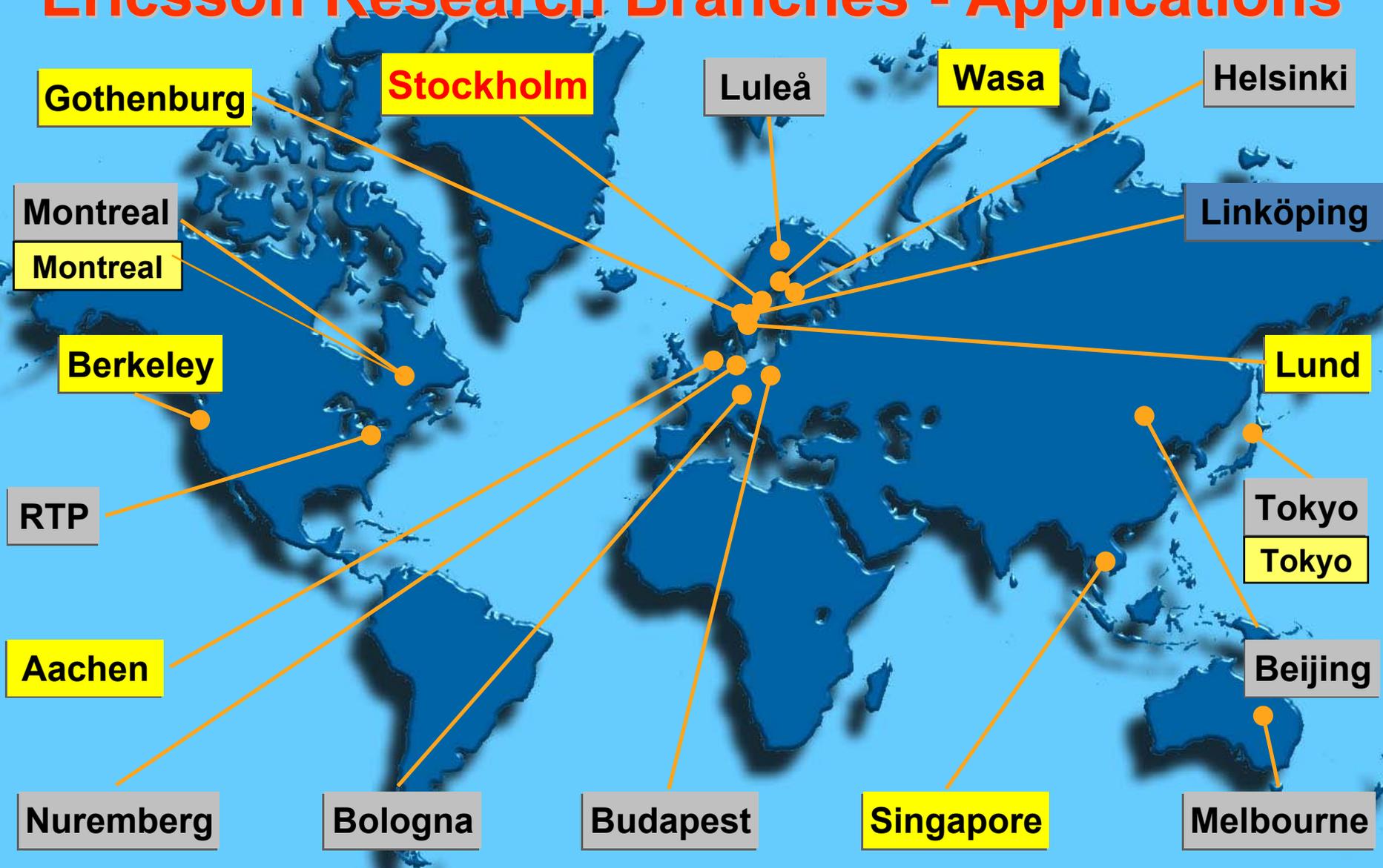


# Montreal - Open System Research Branch

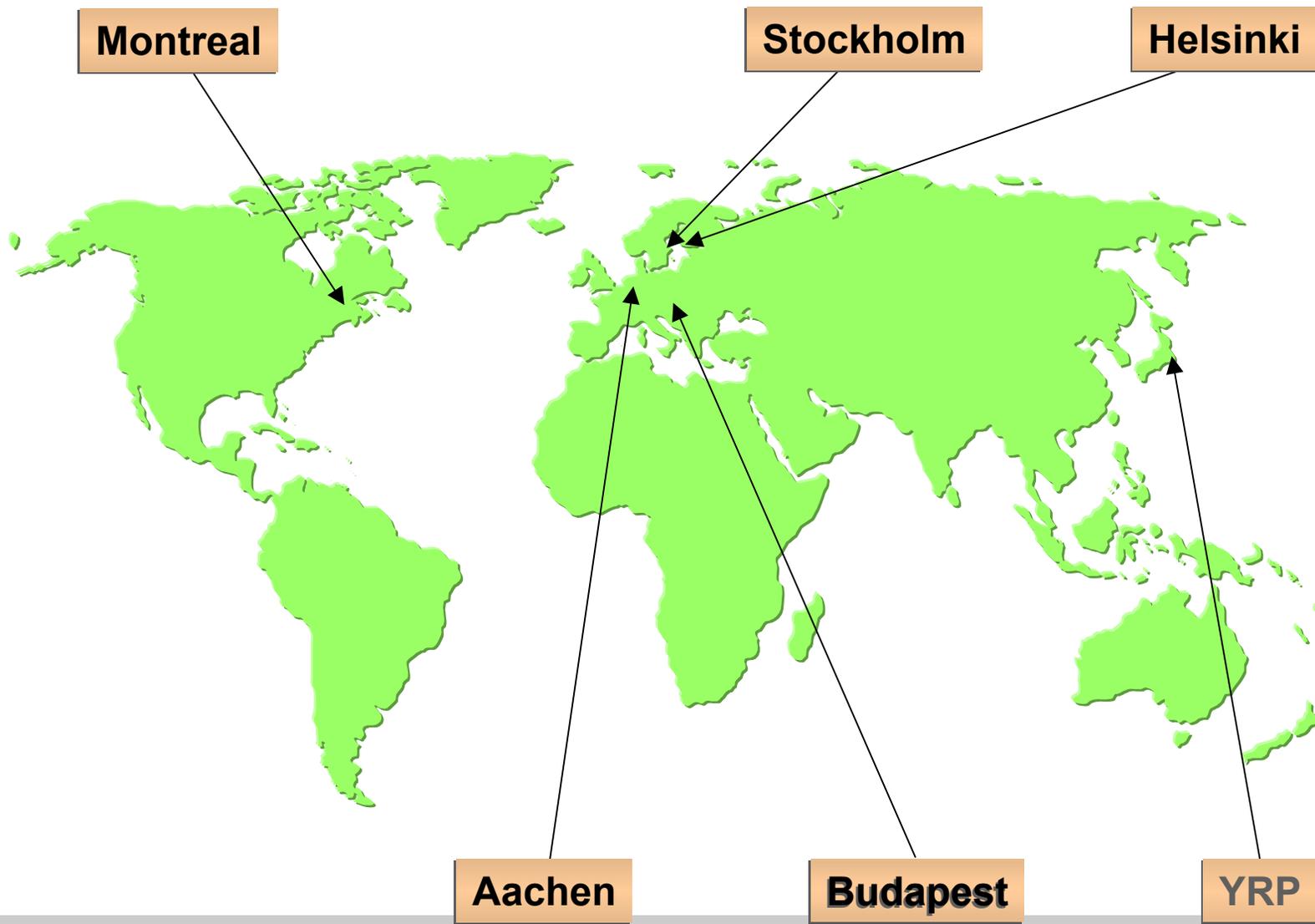


Here you are

# Ericsson Research Branches - Applications



# IP Networks Branches 2002



# Open System Research Lab

**World wide Mandate:**

**Through Applied Research,  
we will demonstrate the viability of a distributed system  
for Servers in IP Networks**

# ER -- Open System Research Branch

- People
  - 14 Researchers
  - Two professor on Sabbatical
  - 12 Graduates and 4 coop students
- Working with the Academy
  - Sherbrooke University
  - Polytechnique
  - McGill University
  - Concordia University
  - UQAM University
  - L.A.U.
- Lab Equipment (over 600,000\$/year)

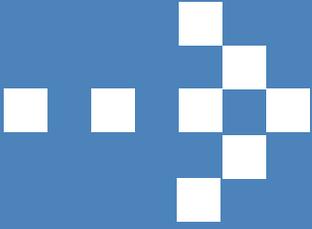
## SYSTEM RESEARCH AREA

### Servers and Cluster Technology

- Distributed Security Infrastructure
- IPv6 Server Nodes
- Open Source Contribution
- Alternate Scalability Technology
- Cluster Dimensioning

## NETWORKING RESEARCH AREA

- IP Network GPRS Evolution Study
- UMTS-QoS to DS-QoS (QoS Mapping)
- Fast-Reroute (Network Resiliency)
- IPv6 Evolution as Applied to Routers
- Broadband Remote Access Server



# The ARIES Project

Advanced Research on Internet E Server  
Ericsson Research

# ARIES 2000

## Areas:

**HA Clusters as Internet Servers using TelORB and Linux**

2000

Find and prototype the necessary technology to prove the feasibility of an Internet Server that has the guaranteed availability, response time and scalability using both TelORB and Linux.

## Innovations:

- TSP Architecture
- E-VIP
- Interzone IPC
- SS7 stack (scalable)
- TelOrb IPC on Linux
- HA Linux Cluster
- **Linux Diskless Booting**
- **Linux NFS Redundancy**
- **Linux Ethernet Redundancy**
- ...

# ARIES 2001

## Areas:

- Alternate Scalability Technologies
- Cluster Dimensioning
- Load Balancing
- IPv6
- Security

2001

Enhance clustering capabilities of TelORB and Linux clusters as Mobile Internet Servers

## Innovations:

- Distributed Security Infrastructure
- Fire Walling Kit
- Secure Boot
- FreeBSD and Linux study
- Security Evaluation Lab
- Application Modeling tool
- IPv6 Competence

# ARIES 2002

## Areas:

- Alternate Scalability Technologies
- Cluster Dimensioning
- IPv6
- Platform Component Reusability
- Security on clustered servers

## Innovations:

- Asynchronous Event Mechanism
- T-IPC on CPP
- DSI components
- Dimensioning tool
- A Secure CSCF
- Standard Linux Device Driver API

2002

- Convergence of specific elements of the different platform technologies to be used in Server and Router nodes.
- Focus on the clustering capabilities of different OS supporting highly available secured application in an all-IP world.

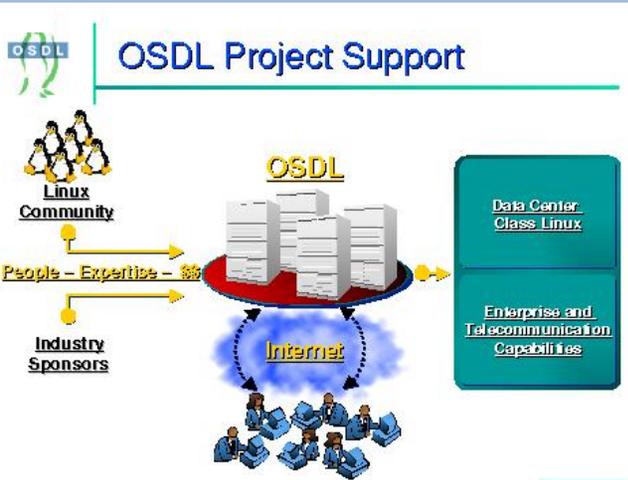
# Ericsson and OSDL: Towards a Carrier Grade Linux

## The Open Source Initiative:

"When programmers can read, redistribute, and modify the source code for a piece of software, the software evolves. People improve it, people adapt it, people fix bugs. And this can happen at a speed that, if one is used to the slow pace of conventional software development, seems astonishing. Open Source Initiative exists to make this case to the commercial world."

## Open Source Development Lab:

"OSDL is dedicated to enabling Linux and Linux-based applications for data center and carrier-class deployment.  
 "OSDL is committed to creating a true "carrier grade" Linux and is in the process of defining a roadmap for this development."



## Unique opportunity:

None of the contributors by itself would be able to create the same infrastructure in the same time frame at the same cost.

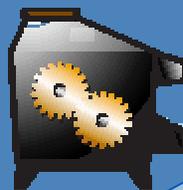
**ERICSSON** **NOKIA**  
**hp** **MITSUBISHI ELECTRIC** **intel.**  
**invent** **DELL** **IBM** **FUJITSU**  
**TOSHIBA** **ALCATEL**

**Research Labs and Universities ...**

**MIRACLE** **VA SOFTWARE**  
**SuSE** **redhat**  
**CALDERA** **MONTAVISTA SOFTWARE** **turbolinux**  
 Powerful Thinking.

**CCG** Open Cluster Group **OSDL** Open Source Development Lab

Creating an infrastructure necessary for all the contributors.



Linux is an essential building block for the next generation all-IP network infrastructure. Open Source guided by OSDL is a speedway to create this infrastructure.

## Strategy:

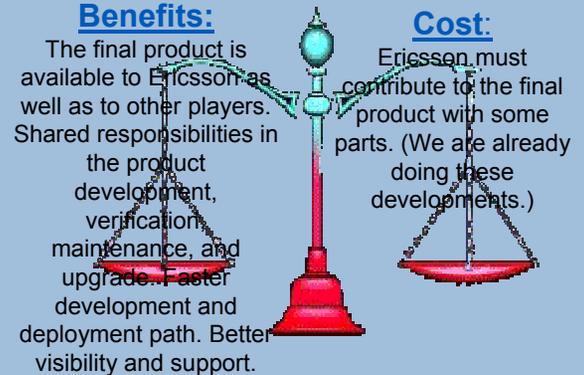
- By joining OSDL, Ericsson gets a feature defining position in the direction of the Open Source development and ensures that Linux supports the carrier grade features efficiently and in a uniform way.
- By careful selection of the contributions, Ericsson will be able to maintain its leading position in the industry.

## Benefits:

The final product is available to Ericsson as well as to other players. Shared responsibilities in the product development, verification, maintenance, and upgrade. Faster development and deployment path. Better visibility and support.

## Cost:

Ericsson must contribute to the final product with some parts. (We are already doing these developments.)



## The example of TSP:

Linux is key component in Ericsson's strategic platform TSP. The **ARIES<sup>2002</sup>** project is committed to promote Linux and Open Source within TSP to take full advantage of this unique opportunity of fast product development.

**TSP**  
**ARIES Project**  
**Carrier-Grade Linux**

# AGENDA – June 25

09:00 – 09:30	Denis Monette	Welcome / Ericsson Research
09:30 – 10:00	Ibrahim Haddad	Ericsson potential contributions to OCG
10:00 – 10:30	Break	
10:30 – 11:00	Frederic Rossi	Asynchronous event mechanism on Linux
11:00 – 11:30	Michel Barette	Diskless Linux Clusters at Sherbrooke University
11:30 – 12:00	Benoit des Ligneris	OSCAR diskless – Ideas of implementation
12:00 – 12:30	Lunch and individual discussion time	
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13:30 – 14:00	Makan Pourzandi	Distributed Security Infrastructure
14:00 – 14:30	Miroslaw Zakrzewsk	Cluster Access Control – with demo
14:30 – 15:00	Charles Levert	Distributed Security Policy
15:00 – 15:30	Break	
15:30 – 16:00	Marc Chatel and Bruno Hivert	Ericsson Research Lab visit
16:00 – 16:30	Open discussion and prepare for departure	
16:30 – 17:00	Open discussion and prepare for departure	
17:00	Leave Ericsson to train station	
18:00	Departure to Ottawa	

# Thank You.



## **Denis Monette**

Ericsson Research – Corporate Unit

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