



Federal University of  
Santa Catarina (UFSC)  
Brazil



Technological  
Center (CTC)

*Informatics and Statistics Department*



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## **A Wireless Monitoring Approach for a HA-OSCAR Cluster Environment**

**M.A.R. Dantas and C. Rista**

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- Introduction
- HA-OSCAR
- Wireless LAN
- The WLAN Monitoring
- Experimental Results
- Conclusions

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# Introduction

- In this article we present a prototype implementation project to utilize a wireless LAN together with a mobile computing approach to enhance the monitor function of a HA-OSCAR configuration. The environment considered was the IEEE 802.11b/g wireless LAN where a mobile device receives specific information about the primary (or standby) node.

# Agenda

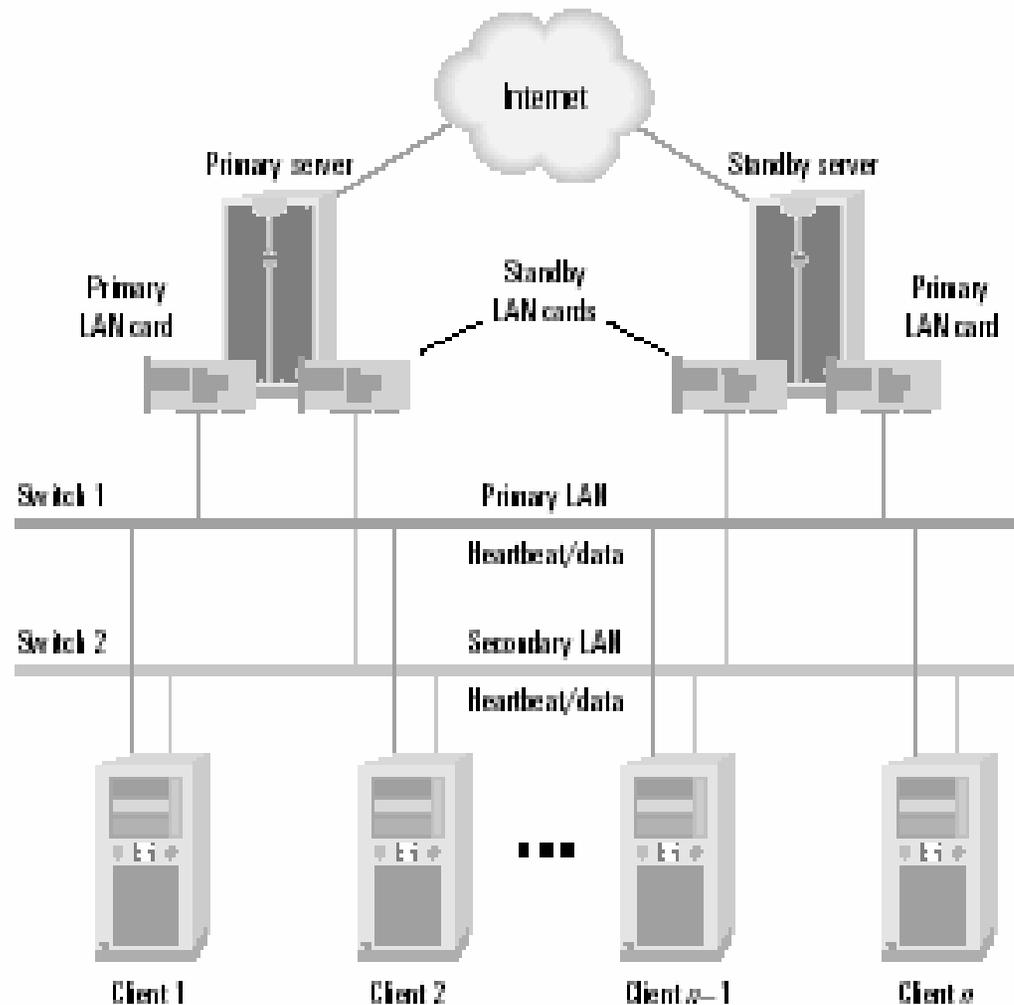
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# HA-OSCAR

- The environment from a HA-OSCAR has three main components:
- Primary Server – it is responsible for the submission of all tasks to client nodes.
- Standby Server – it is a full image of the primary server.
- Clients – these machines are responsible to execute all the tasks submitted to the cluster.

# HA-OSCAR (Example)



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# Wireless LAN

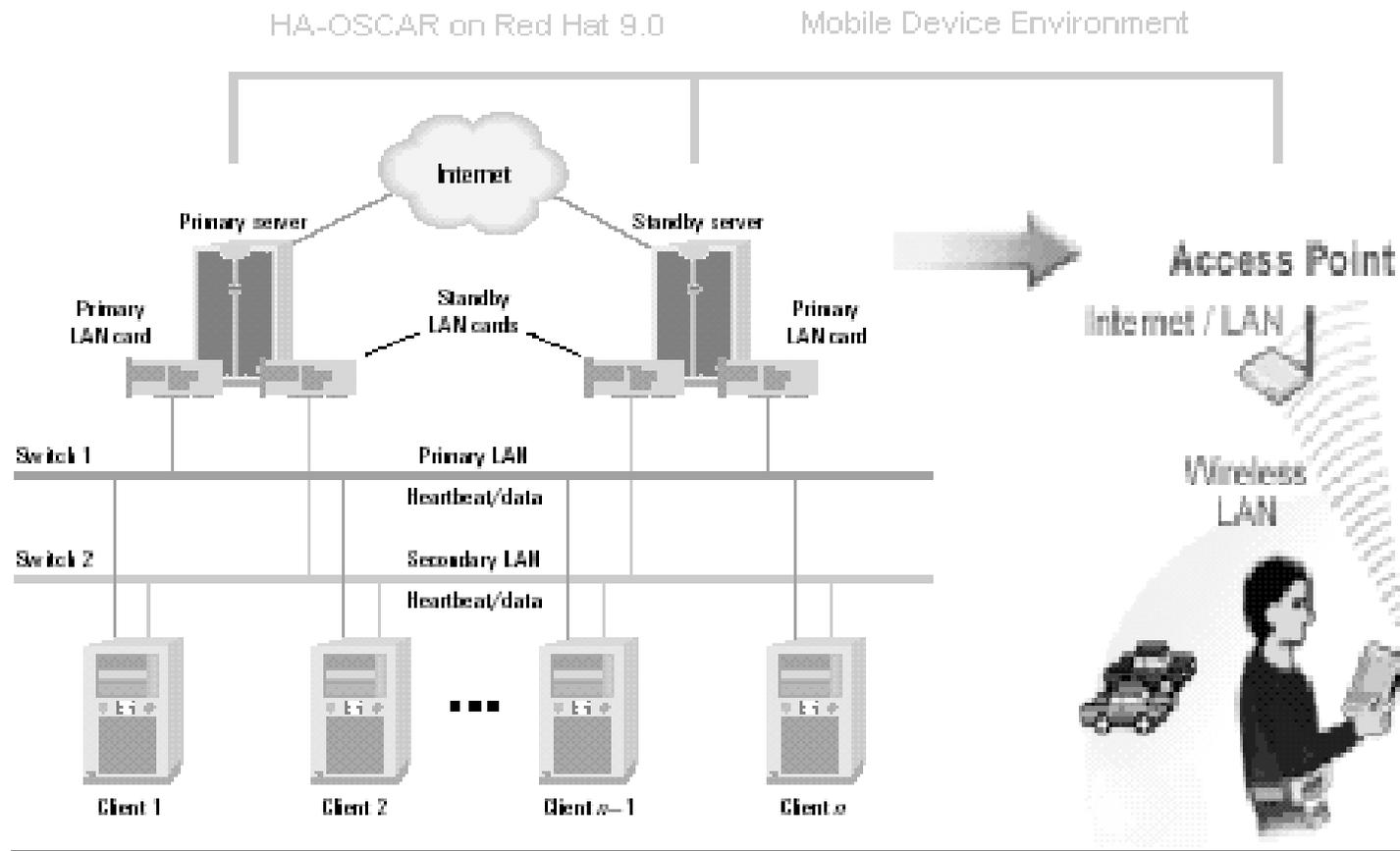
- The IEEE 802.11 defines two operations modes: structured network and ad-hoc environment.
- IEEE 802.11a
- IEEE 802.11b
- IEEE 802.11g

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# The WLAN Monitoring



# The WLAN Monitoring

- In the cluster environment, we used the following software:
- OSCAR 3.0
- HA-OSCAR 1.0 beta
- GNU/Linux (Red Hat Linux 9.0)

# The WLAN Monitoring

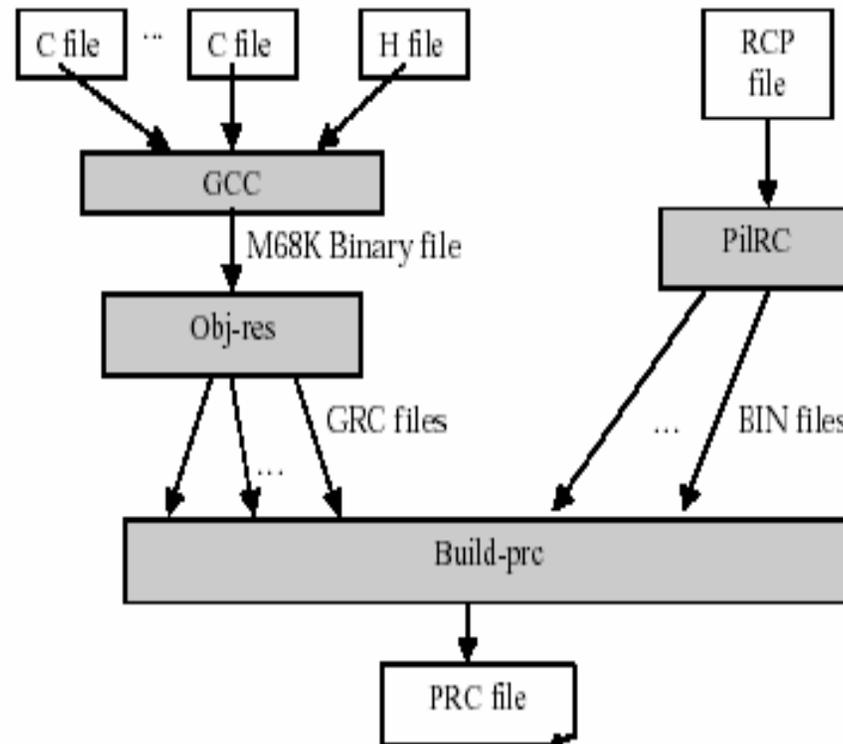
- In addition, during the design and implementation phase of our prototype we used the following software: GCC version 3.2.2, PRC-Tools, Palm OS SDK, PilRC and POSE.
- These software packages allow the creation of C and C++ applications for the Palm OS platform, using the GNU/Linux environment.

# The WLAN Monitoring

- The developed tool is characterized by two main modules:
- The first component (`haoscar_standby.c`) is responsible for monitoring the master (or primary) node. This module also exists in the standby (or secondary) node.
- On the mobile device side, we design a module (`haoscar.prc`) to execute under the Palm OS to process messages sent by the primary node from the HA-OSCAR environment.

# The WLAN Monitoring

- The structure of the mobile Palm OS module is presented in figure below:



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# Experimental Results

- This figure shows a notification of execution received by the mobile device.



# Experimental Results

- This figure shows a notification of problem received by the mobile device.



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# Conclusions

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- In this article we have presented one tool (prototype) that was designed and implemented to improve the monitoring function of the HA-OSCAR software environment. Our prototype extends the facilities found in the wired network to mobile devices executing Palm OS in a wireless LAN.

# Questions?

**Mario Dantas**

**Federal University of Santa Catarina (UFSC)**

**Department of Informatics and Statistics**

*mario@inf.ufsc.br*

**Cassiano Rista**

**Federal University of Santa Catarina (UFSC)**

**Department of Informatics and Statistics**

*rista@inf.ufsc.br*