

Company Profile

Storage Expertise

**GRACE System Technology Labs
(India) Pvt. Ltd.**

Technology Centric, Value Driven

Expertise on Storage

Over the past few years we have been involved in many exciting Storage domain based projects.

Some of the Projects in which our Associates have been involved are listed below:

Projects – Storage Related

1. Converted legacy SAN device windows drivers to PnP drivers
2. Driver support for handling multiple SAN devices
3. Windows Bus driver to enumerate multiple Drivers for the same SAN device.
4. Linux to Windows Drivers porting, feature addition, bug fixing and support.
5. Involved in FabricX EMC Shim layer Implementation for Invista product on Storage Processor Platform. The work involved entire Frame Work Design and Implementation.
6. Error Interrupts handling and error Counters Implementation for Storage Processor Platform.
7. Negative Path implementation for TPM (Transport Manager) as per McData Requirement.

Projects – Storage Related

8. Storage Processor Platform Functional Model Porting from earlier version.
9. Linux 2.6 Porting of Storage Processor Platform Control Path Drivers, Libraries and Applications. Involved porting Driver for various 2.6 Kernel versions used in RHEL, SuSE Distributions and porting drivers to Intel IXDP Platform running Montavista Linux Distribution.
10. The IXDP port was released with Functional model to Intel and supported Bug Fixes for the releases.
11. Hardware Abstraction Layer (HAL) for Storage Processor Platform Porting, Redesigning and Feature addition . Also involved hardware modules Initialization and Bug Fixing and support for application bring up team.

Projects – Storage Related

12. McData Production level Diagnostics and Boot code reorganization for a Storage Processor Platform Based product and Support.
13. Storage Processor Platform Production Level Diagnostics and boot code reorganization and Support.
14. Windows drivers, Library, applications feature addition, bug Fixes and support for Storage Processor Platform.
15. Storage Processor Platform Diagnostics. This involved :
 - ❖ Frame Work porting and redesign.
 - ❖ Finding Hardware Level Bugs and reporting .
 - ❖ Working with Chip Design Team and emulation Board teams to Debug and fix the Bugs.

Projects – Storage Related

16. Storage Processor Platform Emulation Board Bring up . This involved :
- ❖ Basic and Advanced Boot Code porting and new features addition
 - ❖ Flash programming and code download support
 - ❖ UART driver.
 - ❖ Setting up Compilation Environment (Metaware compiler) and Building image for Emulation Platform.
 - ❖ Any proprietary Tools required was ported from earlier Storage Processor Platform .
 - ❖ MQX RTOS BSP,PSP Porting and MQX OS Bring up on the Board.

Projects – Storage Related

- ❖ ARC SeeCode Debugger Porting for emulation platform.

Debugger Library was ported from Windows to Linux.

JTAG Support of Debugger was Implemented.

Debugger Support for various Arc cores in the emulation platform was Enabled.

17. Raptor ASIC board (RBUB) bring up and Diagnostics.
18. FC/ISCSI multi port HBA Bring up and Diagnostics.
19. 10G Multi port NIC Card Bring up and Diagnostics.
20. Diagnostic firmware, HAL, Drivers for on chip PCIe functionality testing (ASIC in RC and EP Mode). The firmware processes and generates TLP.

Projects — Storage Related

21. I2C,SMBUS protocol layer implementation in the firmware for device to act as both Master and Slave.
22. MDIO protocol layer implementation to access PHY,PMA,PMD modules for 10G Ethernet Module.
23. Firmware development for Temperature/Voltage Monitoring and alarm for ETH,FC HBA.
24. Firmware Porting and bug fixing FC speed negotiation for 1,2,4G speeds.
25. Firmware porting for FC LCSM state machine handling.
26. Error interrupts handling porting, enhancement and testing.
27. Firmware porting for ASIC simulation environment .This involved adding overlay support for current firmware for executing in the hardware simulation environment.
28. Virtual serial driver on Windows/Linux.
29. Bug fixes for FC and Virtualization drivers.
30. FC port Manager API implementation.
31. Production level Diagnostics and Multi card/HBA test platform interface software/firmware development for NIC and FC HBAs.
32. Windows NDIS 6.0 Mini port Driver for Vista and Longhorn (Server 2008).This driver would be further developed to support Virtualization of NIC in hyper visor environment.

Projects — Storage Related

- 33. Host controller driver for SD/MMC storage card in embedded Linux and Uboot
- 34. Raw test driver for SD/MMC card on embedded Linux and Uboot
- 35. Embedded Linux test project (LTP) for Kernel Debugging
- 36. Ethernet driver for Davicom DM9000 controller in embedded linux and Uboot
- 37. Flash related drivers and utility development on Windows
- 38. Porting of Flash utilities and file system to different version of VxWorks
- 39. Building test bench for flash and file system testing on WinCE.
- 40. Development of Flash controller driver on VxWorks.

Projects — Storage Related

41. Bring up of Asic FPGA emulation on HAPS rapid prototyping platform with Arm cortex-r4 tile.
42. Design and development of boot code and BSP based on threadX RTOS for multi processor Arm cortex-r4 platform.
43. Diagnostics firmware, driver, application and threadX based hardware abstraction layer (HAL) for a Converged network adapter (CNA) for NIC ,FC and FCOE traffic with stateless TCP/IP offload support (CSO,LSO and LRO) and BCN,QCN congestion notification protocols .
44. Linux Host based firmware flash download driver and utility development for CNA on 2.6.x kernels.
45. NIC management software for CNA.
46. Porting of unified storage Management application and driver for VMware ESX server platform.

Projects — Storage Related

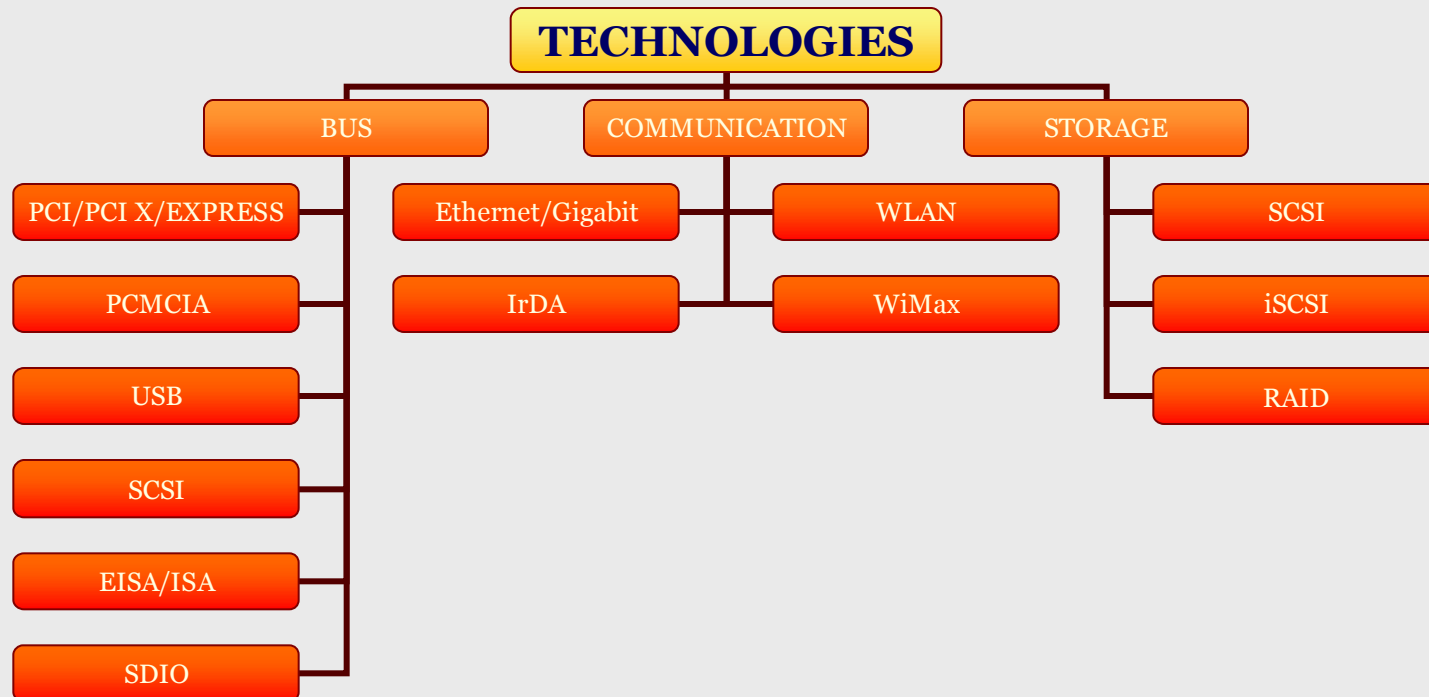
- 47. UEFI PXE UNDI driver for FCOE, NIC CNA for Network Booting .
- 48. iSCSI boot using FCode for SUN and IBM data centre server platforms .
- 49. NDIS Miniport Driver for NIC on Windows Server 2008 (NDIS 6.0 and NDIS 6.1), Windows Server 2008 R2 aka Windows 7 (NDIS 6.20) supporting TCP/IP Offloads CSO, LSO, HDS, RSS, VLAN.
- 50. Hardware abstraction layer for Windows driver.
- 51. iSCSI Storport Miniport Driver supporting TCP Chimney Offload and RSS for Windows Server 2008 (NDIS 6.0 and NDIS 6.1), Windows Server 2008 R2 aka Windows 7 (NDIS 6.20).

Case Studies

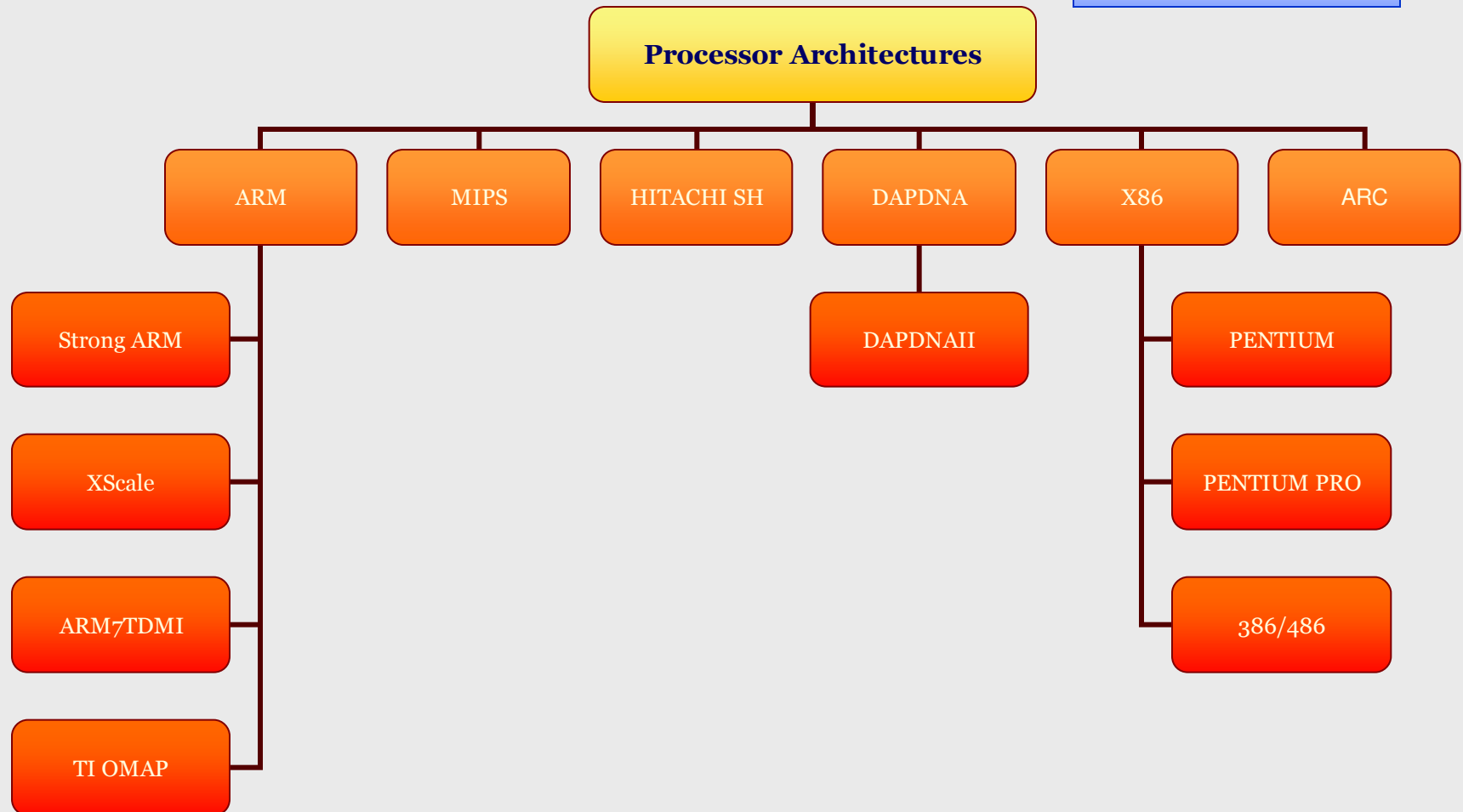
For case studies please visit :

www.gracelabs.com/case_study.html

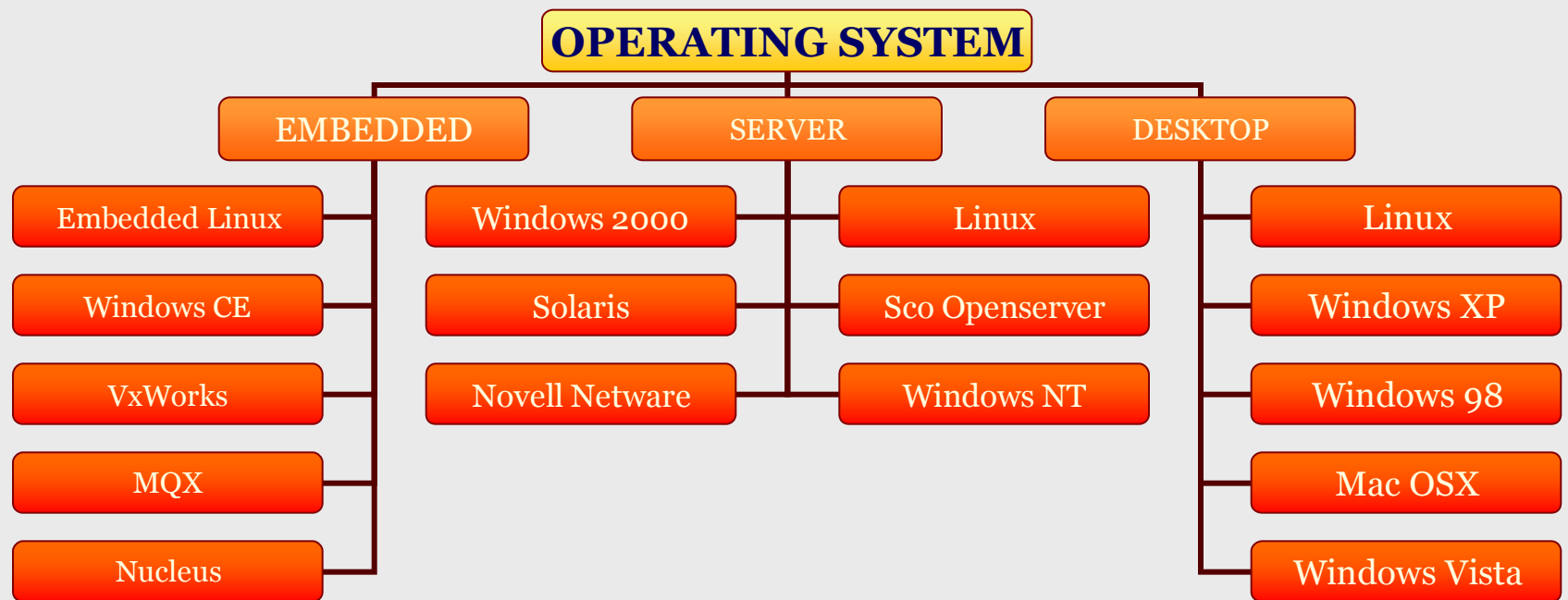
Domain Expertise – *TECHNOLOGIES*



Domain Expertise – ARCHITECTURES



Domain Expertise – *OPERATING SYSTEMS*



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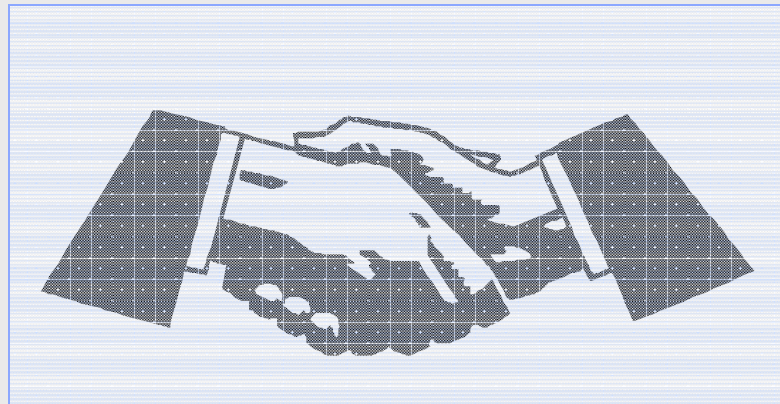
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***Looking Forward to a mutually
Beneficial relationship...***



THANK YOU