



Electronic Design & Software Services



Locations:

Head Quarter : Nutley, NJ
Chicago, IL & Ahmedabad, India
www.pnconline.com



Electronic Design & Software Services

Introduction

- Established in 1968
- Head Quarters Nutley, NJ, USA
- Satellite locations: Chicago, China & India
- 100+ Employees
- 20+ Engineers
- High-Tech PCB Design, PCB fabrication and PCB Assembly
- Electronic Design & Development
- Embedded Software Development
- Networking and IP solutions
- Mechanical & Packaging Design
- Delivered 18 million+ PCBs
- Designed 200+ PCB designs
- Developed 30+ electronic products
- Certifications: ISO-9001-2008, ITAR, MIL-PRF-55110 and 31032

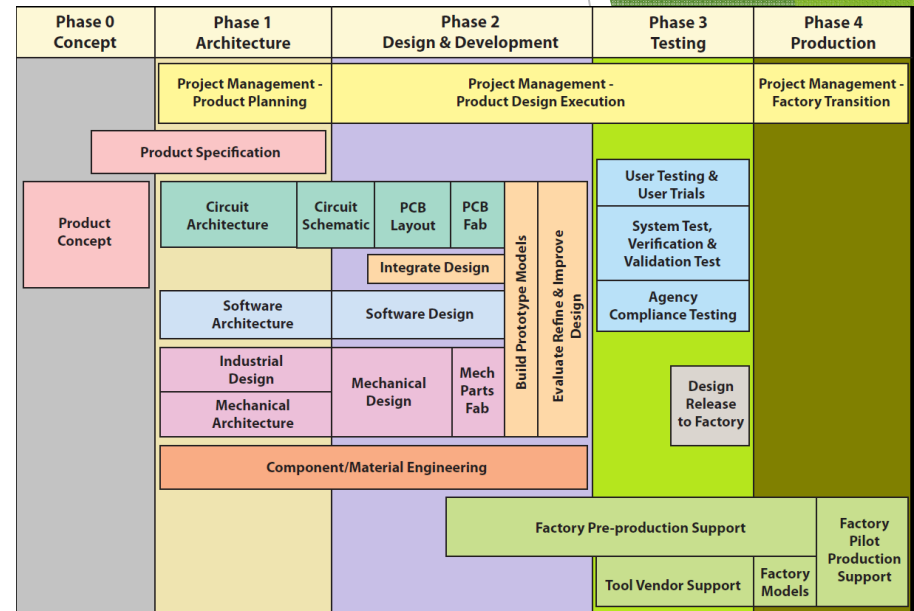




Electronic Design & Software Services

Product Development Process Flow

Complete electronic design services for all your innovative ideas. We can build product by taking your concept to working prototype, final design and to mass production. We can guide and assist our clients throughout all the design phases to ensure final product transition into their target market in a timely and cost effective manner.



When no packaged software can't quite provide the solution you need, custom application development can close that gap. We have successfully contributed to application Development on a large variety of platforms at various size enterprises.

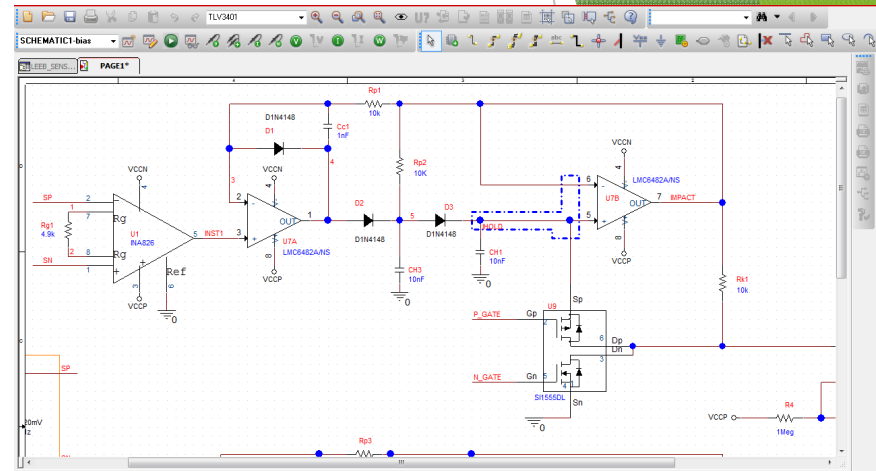
We will take on the burden of ensuring that your Information Systems solutions are reliable, while the expenses of running the system are kept low. As today's solutions are becoming more complex, we will provide all your Information Systems service needs to best fit your application.



Electronic Design & Software Services

Circuit Design

- Circuit Design from concept
- Circuit optimization & Worst-Case analysis
- High speed precision amplifiers, A/D, D/A
- RF transmission line, LNA, Power Amplifiers, VCO, Mixers, and couplers
- MEMS, signal conditioning, EMI filters and SMPS power supply designs
- Motor Control: BLDC, PMAC-PMSM, and AC motors
- Power Electronics: DC-DC Converter, MOSFET, IGBT, and Inverters
- UART, RS-232, RS-485, I2C, SPI, I2S, MII, CAN, PWM
- Wireless 802.11, 802.15.4, 900MHz to 5.8GHz transceivers

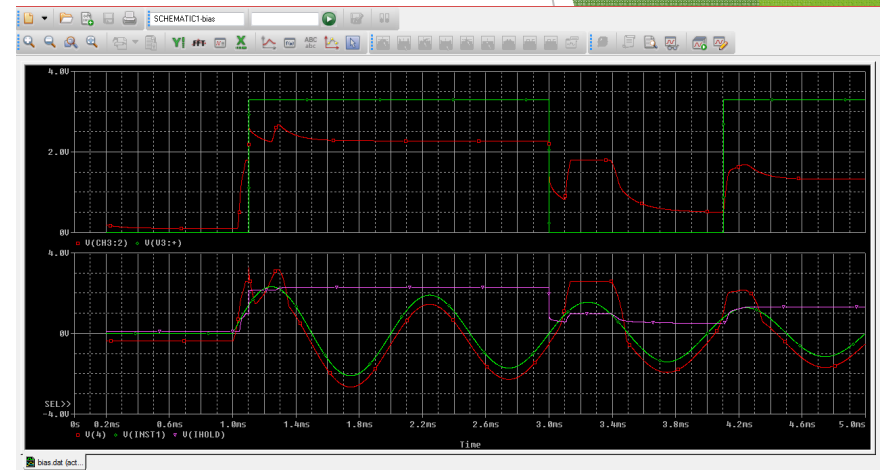




Electronic Design & Software Services

Circuit Simulation

- Component Selection
- Component sizing
- Worst-case analysis
- Reliability analysis
- Noise reduction
- Parasitic component effects
- Impedance matching
- Signal Integrity analysis
- Power Integrity analysis
- EMI analysis



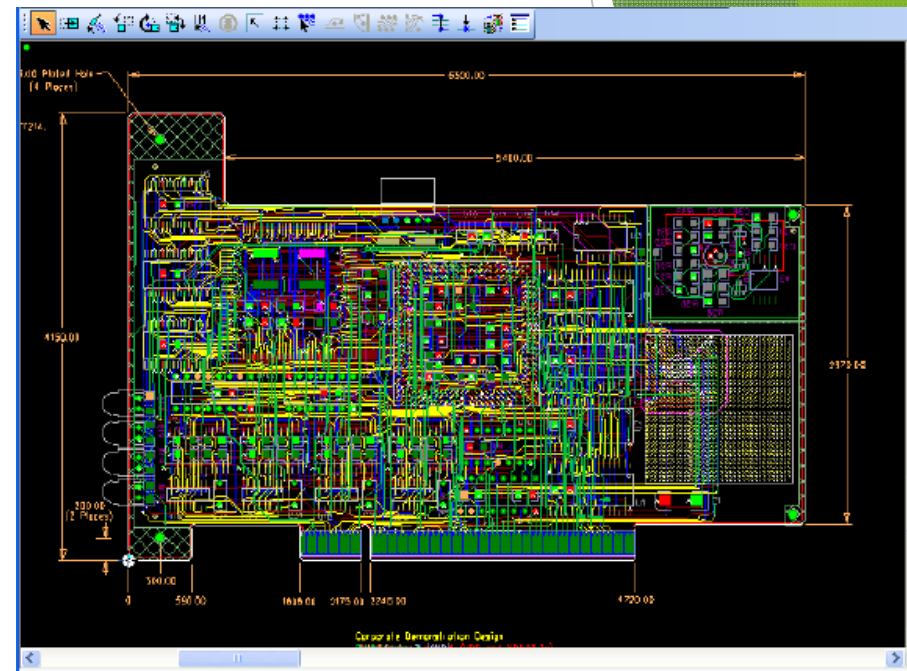


Electronic Design & Software Services

PCB Design

Low-noise analog, high-speed digital, mixed analog/digital, controlled impedance, differential pairs, matched trace lengths, DDR memory, blind buried & microvias, High Power, RF, Microwave, Flex, Rigid Flex, manual hand routing, auto-routing, chip on board, and manufacturer proven DFM standards.

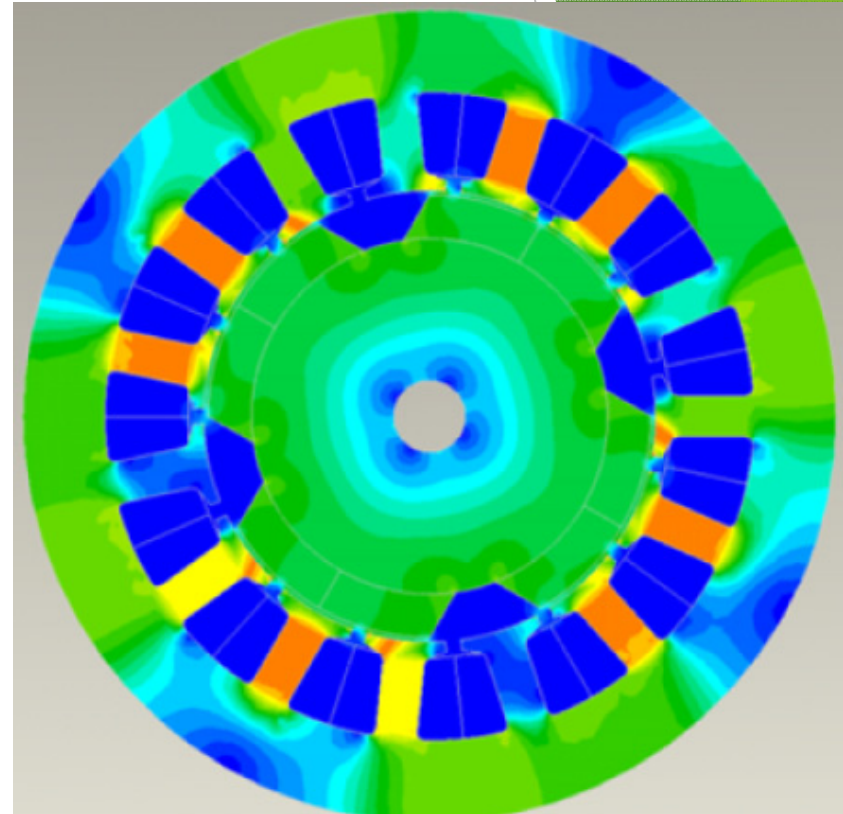
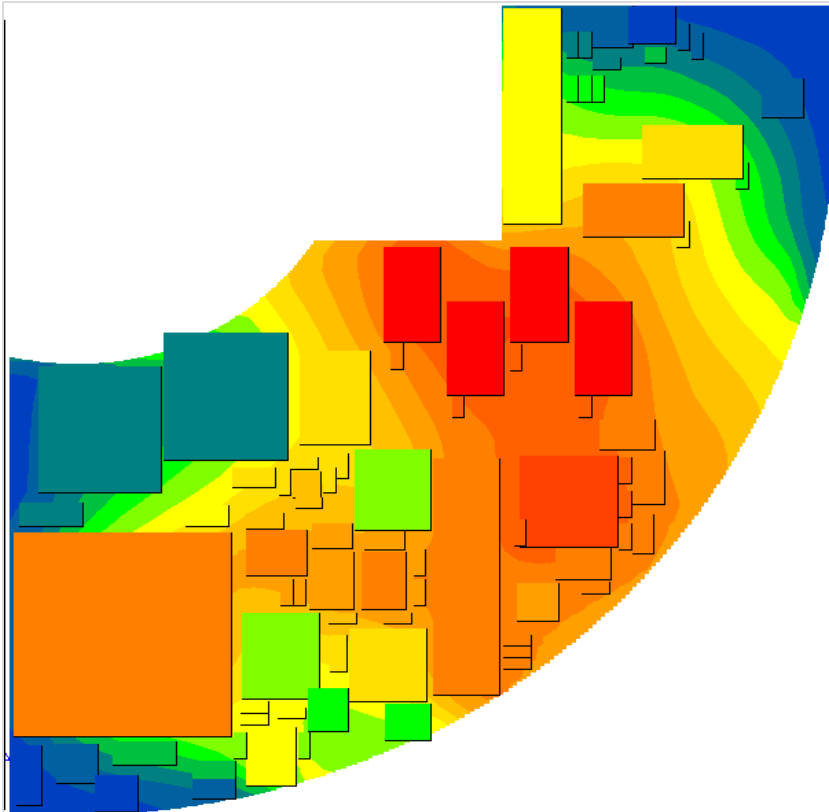
PNC is well versed in the science of EMI, crosstalk, reflections, bypass and decoupling methodologies, minimizing inductance and minimizing loop area, as well as complex fan-out methods.





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System level simulation



PNC offers Thermal and magnetic Finite Element Analysis for PCB, power transformer, inductors and various types of motor magnets & starters. BLDC motor design and sizing's will be based on torque-speed curve requirements.



Electronic Design & Software Services

Embedded Software

- C, C++,VHDL, and Verilog
- Embedded Linux, WinCE, FreeRTOS
- Board support packages (BSP)
- Device drivers
- Operating systems porting
- Protocol stacks
- porting/development
- Applications Development
- Graphical User Interface (GUI)
- 8 to 32-bit uC and processors
 - ARM7/9/11, MIPS, PowerPC
 - Cortex-M3/M4
 - AVR
 - PIC
 - 8051, STM8
- FPGA, CPLD
- SDRAM, DDR, SRAM, NAND memory
- TFT, STN, EPD LCD

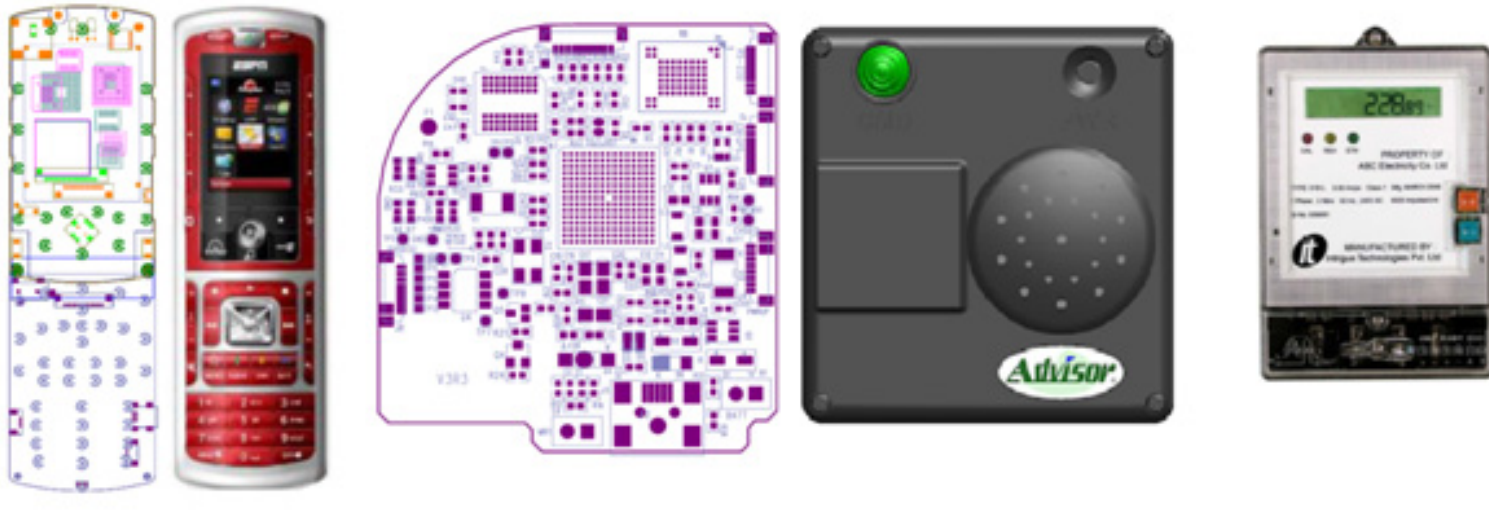
```
File Edit View Project Simulator Tools Window Help
Workspace
spu_master_config.h | spu_master.h | nrf_gpio.h | nrf51_btfelds.h | nrf51.h | nrf.h | main.c | spu_master.c | nrf_delay.h | image.h
Debug
Files
nrf_gpio.h
spi_master.h
spi_master_c_
stobool.h
stdint.h
system_nrf51.h
xencoding.h
ycheck.h
yvval.h
nrf_delay.c
SPI Master
Output
cmssis_jar.h
common.h
compiler_abs
core_cm0.h
core_cmFunc.h
core_cmInstr.h
DLib_Config_
DLib_Default
DLib_Product.h
DLib_Thread_
minisinc.h
nrf.h
nrf51.h
nrf51_btfelds.h
nrf51_diagrec...
nrf_delay.h
nrf_gpio.h
spi_master.h
spi_master_c_
stobool.h
system_nrf51.h
spu_master_example
Ln 11, Col 58 NUM
```

```
26
27
28 /* Configure GPIO pins used for pselck, pselmosi, pselmiso and pselss for SPI */
29 nrf_gpio_cfg_output(SPI_PSELCK);
30 nrf_gpio_cfg_output(SPI_PSELMOSI);
31 nrf_gpio_cfg_input(SPI_PSELMISO, NRF_GPIO_PIN_NOPULL);
32 nrf_gpio_cfg_output(SPI_PSELSS);
33
34 /* Configure pins, frequency and mode */
35 spi_base_address->PSELCK = SPI_PSELCK;
36 spi_base_address->PSELMOSI = SPI_PSELMOSI;
37 spi_base_address->PSELMISO = SPI_PSELMISO;
38 nrf_gpio_pin_wen(SPI_PSELMISO); /* disable Set slave select (inactive high) */
39
40 }
41 else
42 {
43 /* Configure GPIO pins used for pselck, pselmosi, pselmiso and pselss for SPI */
44 nrf_gpio_cfg_output(SPI_PSELCK);
45 nrf_gpio_cfg_output(SPI_PSELMOSI);
46 nrf_gpio_cfg_input(SPI_PSELMISO, NRF_GPIO_PIN_NOPULL);
47 nrf_gpio_cfg_output(SPI_PSELSS);
48
49 /* Configure pins, frequency and mode */
50 spi_base_address->PSELCK = SPI_PSELCK;
51 spi_base_address->PSELMOSI = SPI_PSELMOSI;
52 spi_base_address->PSELMISO = SPI_PSELMISO;
53 nrf_gpio_pin_wen(SPI_PSELMISO); /* disable Set slave select (inactive high) */
54
55 }
56
57 spi_base_address->FREQUENCY = (uint32_t) SPI_OPERATING_FREQUENCY;
58
59 /*lint -e946 -save // A zero has been given as right argument to operator '!' */
60 /** @snippet [SPI Select mode] */
61 switch (mode)
62 {
63
64 case SPI_MODE0:
65     config_mode = (SPI_CONFIG_CPHA_Leading << SPI_CONFIG_CPOL_Poe) | (SPI_CONFIG_CPOL_ActiveHigh << SPI_CONFIG_CPOL_Poe);
66     break;
67
68 }
```




Electronic Design & Software Services

Product Design



During our 40 years of experience we have worked within various fields like aerospace, industrial controls, and consumer products. We have designed 40+ OEM products, and have contributed to many US patents and an array of technical articles.

Product Designs include, Battery operated hand-held devices, high power motor controls and drives, Graphical User interface, high precision test and measurement devices, wireless devices for remote monitoring systems, power supplies, LED lighting, audio/video processors and many more ...

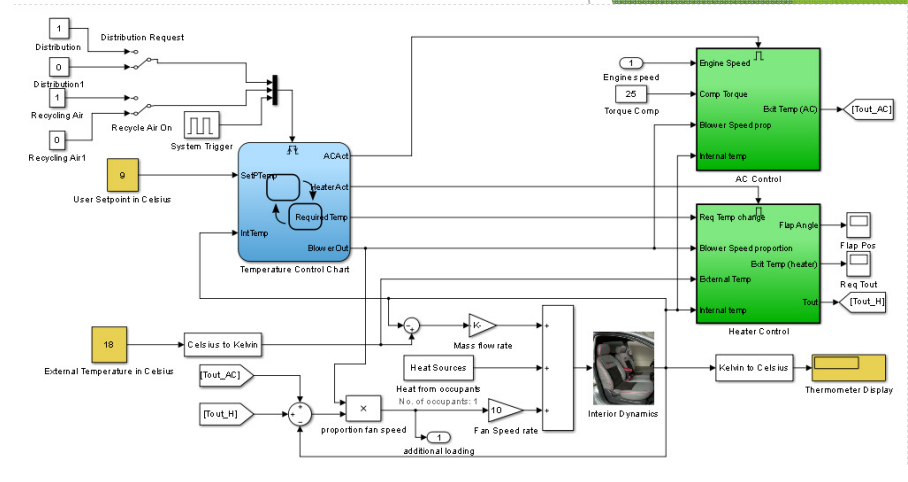


Electronic Design & Software Services

Model based system design

We can provide Systems engineering services to identify, analyze, and document requirements and to develop architectures for your product. We work along side our clients as needed to refine requirements, select an optimal architecture, and identify issues that can be resolved early in the project in order to facilitate efficient design and development by model based design simulation.

We generate electrical, mechanical, and software architecture options to meet the stated requirements. Functional and performance trade-offs across architecture options are identified to support selection of an architecture that is optimized for development cost, effort, and risk.



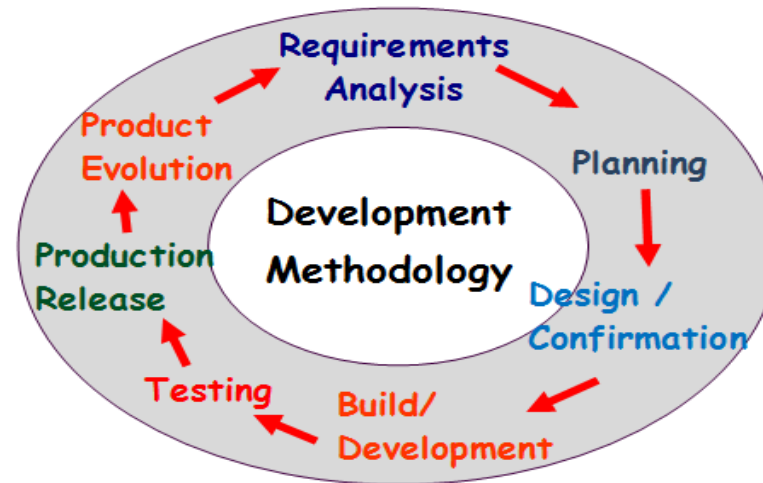
Requirements typically change to some extent over the course of a design/ development due to changes in business needs or clarification of requirements as design options are explored and prototypes are evaluated.



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Software Development Services

When no packaged software can quite provide the solution you need, custom application development can close the gap. We have successfully contributed to Application Development on a large variety of platforms at various size enterprises including initiatives in ASP.NET / C#, VB, WPF, SQL Server, PHP, My-SQL, SQL Reporting, Crystal Reports, Visual C/C++, Java, Microsoft .NET, SQL development and client-server applications.



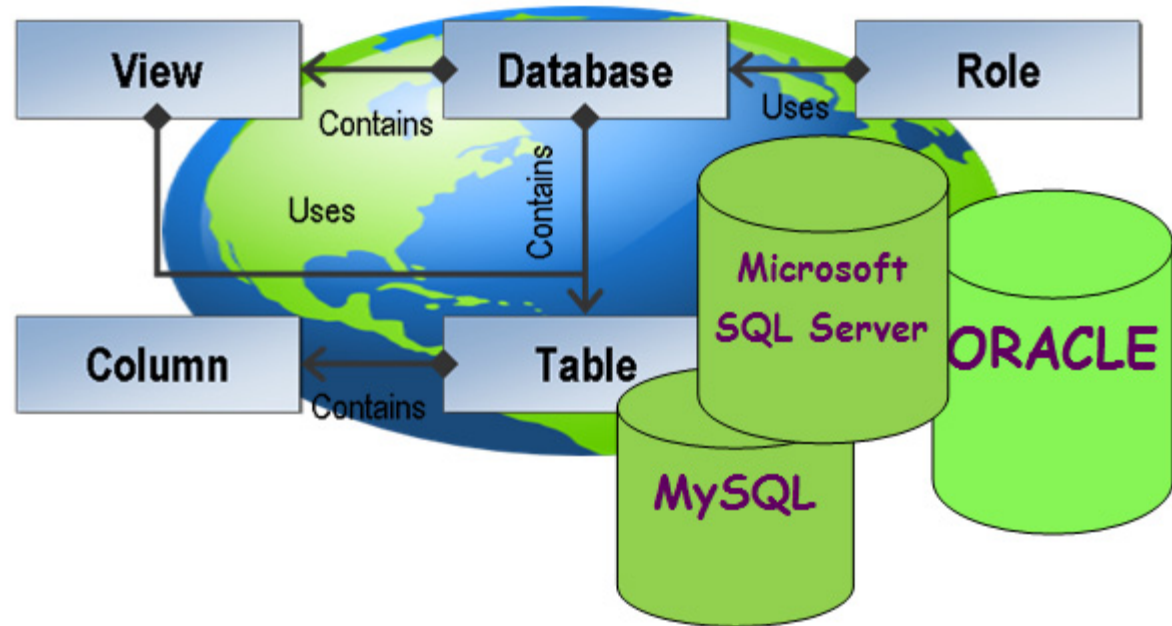
- Complete custom Application/software Development solutions.
- Project planning, requirements gathering to final tested product with agreed quality.
- Take over existing solution and provide maintenance services, such as existing bug fixes or support.
- Re-writing of existing legacy or old solution to bring it up to the latest technology.



Electronic Design & Software Services

Database Services

We can help design, data model and implement by solidifying consistent performing and readily accessible database solutions to match your specific requirement using latest database technologies.



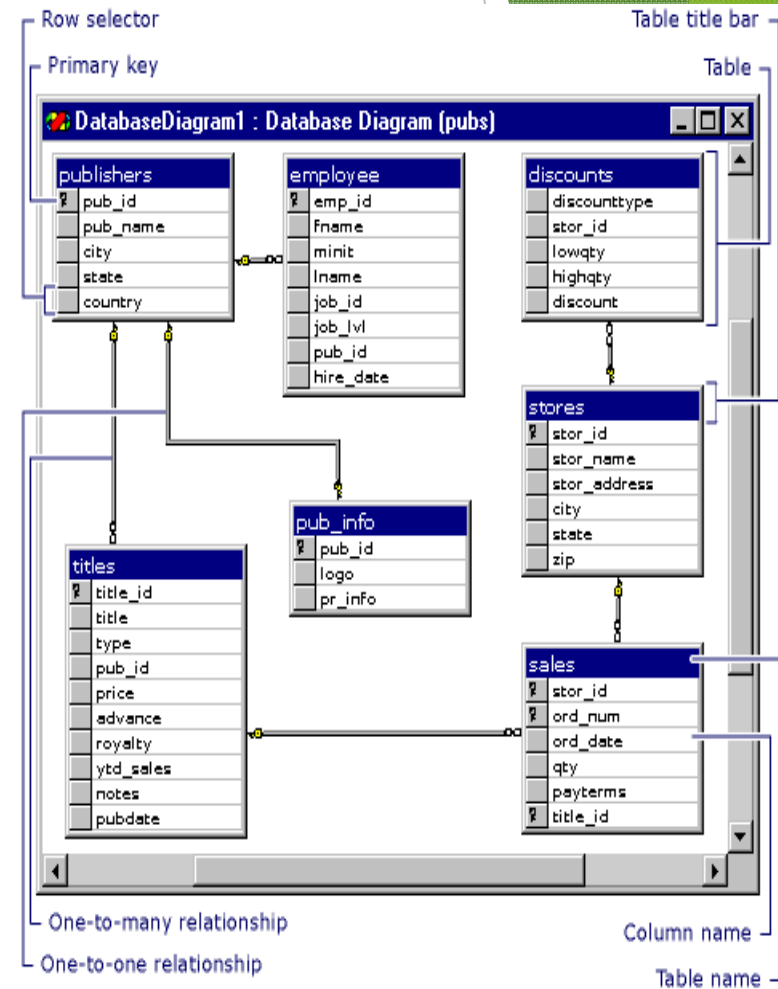
Whether you are upgrading or thinking about upgrading from your current systems to newer database systems, our expertise will enable the success of your migration at every phase of the project; including planning and executing the upgrade, performance tuning, ensuring quality environment is built.



Electronic Design & Software Services

Database Services

- Data synchronization spanning enterprise remote locations and global reach with varying vendors integration and home grown solutions
- Database services solution to leverage multifaceted/complex data movement across geographically expanded enterprise.
- Performance optimization of databases (Oracle, Microsoft SQL Server, MySQL), applications and data access by identifying bottlenecks, analyzing system feature/specifications with best utilization techniques.
- Essential knowledge transfer to our partners for them to successfully run day to day operations.

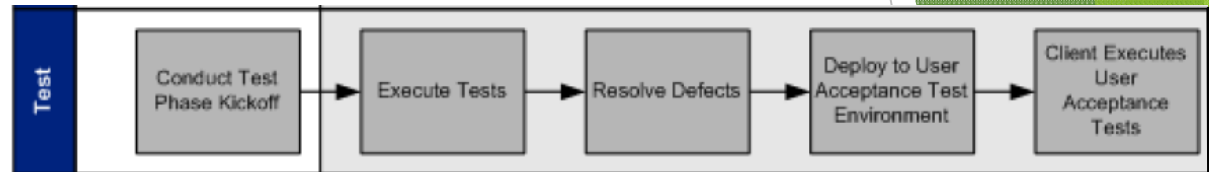




Electronic Design & Software Services

Software Testing & Quality Assurance

We are well versed with testing best practices, structured testing and testing life cycle. We use simplified and standardized testing methodology to quality assure solutions for partners which is very closely integrated with overall project life cycle phases and various development methodologies including Agile Scrum, Rapid Development and demand based development.



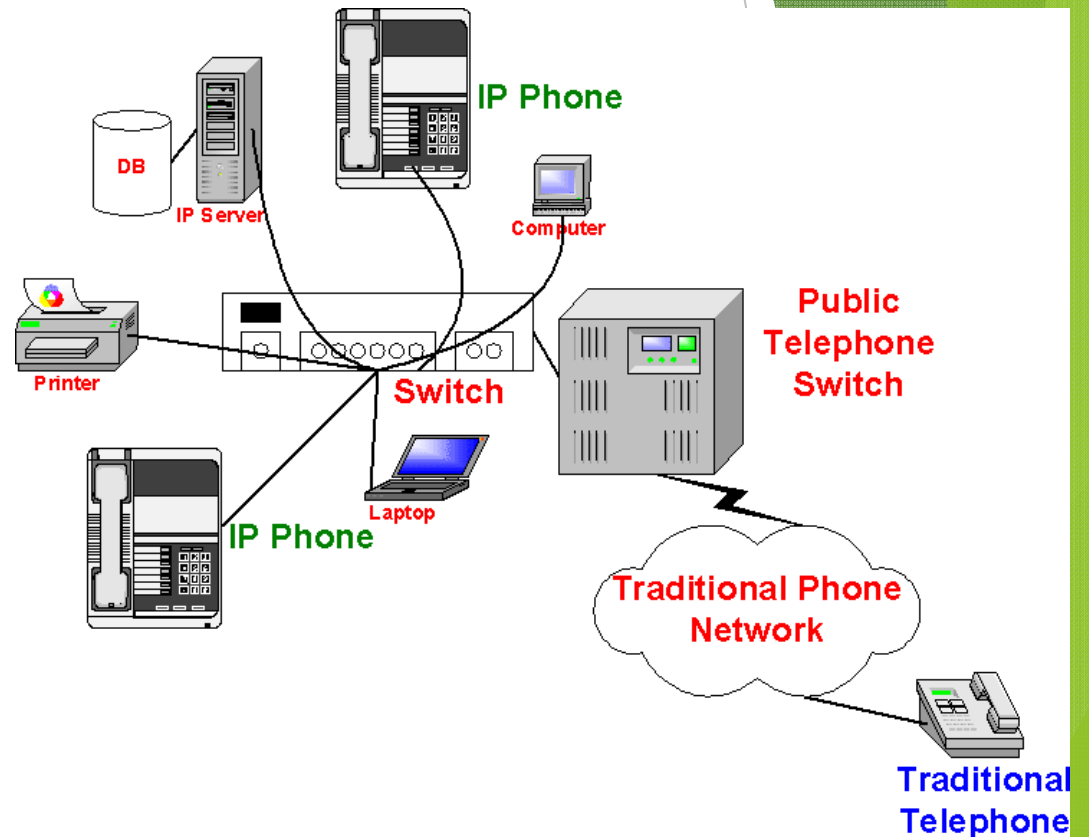
- ❖ Following Testing Maturity Model approach and products are quality assured abiding strict quality standards and with support of artifacts creation
 - Test strategy and planning
 - Test case and script development
 - Defect management
 - Various levels of testing: Integration, System, Performance Testing (Load, Stress, Capacity and Reliability), Regression, User Acceptance Testing
 - Application readiness report



Electronic Design & Software Services

IS (Information Systems) Backbone Services

Our goal is to enable our clients to utilize Information Systems as a tool to run their business effectively. We will take on the burden of ensuring that Information Systems solutions are reliable, while the expenses of running the system are kept low. As today's solutions are complex, we will provide all your Information Systems service needs to best fit your situation.





Electronic Design & Software Services

IS (Information Systems) Backbone Services

Networking

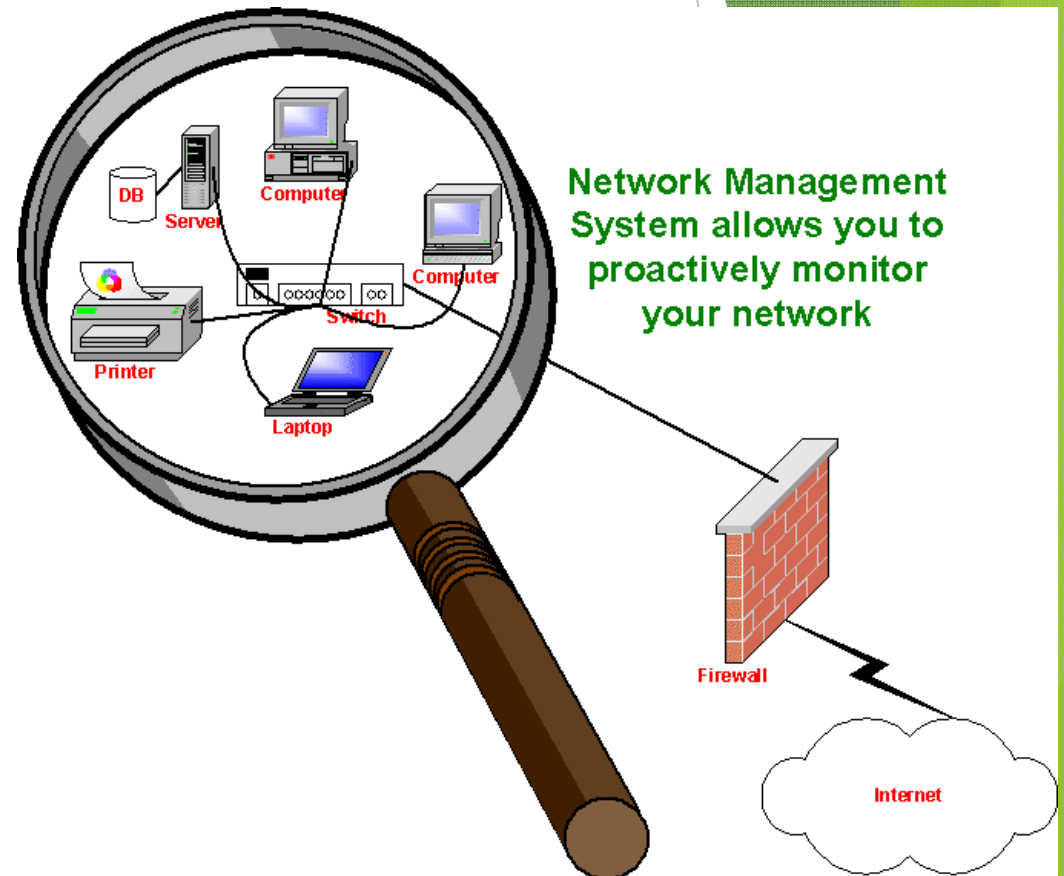
- ▶ Wired/Wireless
- ▶ Routing
- ▶ Switching
- ▶ Firewalls/Security

Unified Telephone Communications

- ▶ Voice & Unified messaging
- ▶ IP Telephony
- ▶ IP Video Virtual Conferencing
- ▶ Unified Contact Center

Managed Services

- ▶ Remote Administration
- ▶ Remote Helpdesk
- ▶ 24x7 Remote Monitoring and Management



Network Management System allows you to proactively monitor your network



Electronic Design & Software Services

Backup/Storage/Disaster Recovery Solutions

IS (Information Systems) Backbone Services

- ▶ Networked
- ▶ Cloud Based
- ▶ Direct Attached
- ▶ Customized Solutions

Virtualization

- ▶ Server Virtualization
- ▶ Desktop Virtualization
- ▶ Application Virtualization
- ▶ Cloud Based Virtualization

Data Center

- ▶ Designs
- ▶ Buildouts/Installation
- ▶ Migrations

