



Making Design Reuse Work

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ClioSoft – a brief introduction



- ❑ Founded in 1997. Headquartered in Fremont, CA
- ❑ Over 150+ customers ...

- ❑ Provides software for collaborative design release and derivate management & IP Management
- ❑ Integrated with tools from Cadence, Synopsys, Mentor Graphics & Agilent technologies

Mission: Improve productivity of design teams

Challenges faced by SoC designers



- Shrinking time-to-market window
 - Changing consumer demands
 - Increased competition

- Increasing SoC Complexity
 - Digital convergence; more and more IPs being integrated on a single chip.
 - Increased use of analog designs
 - Shrinking process technology

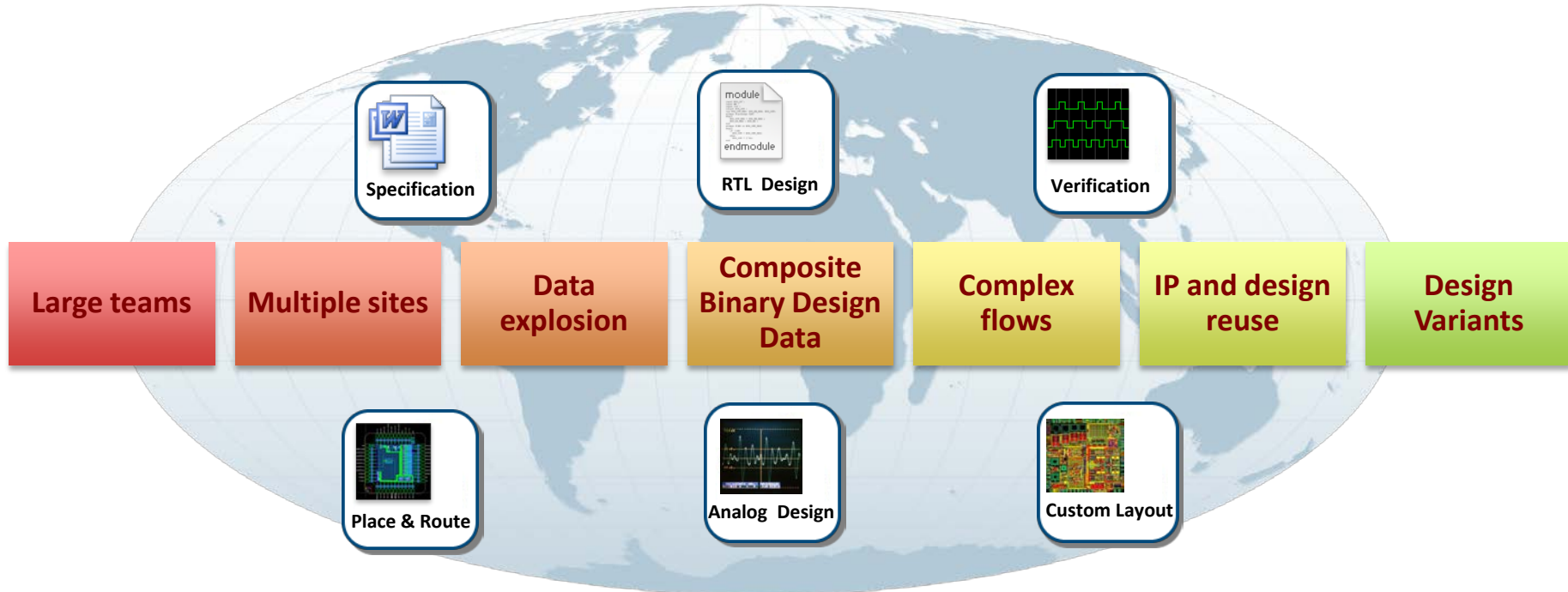
- Increase designer productivity to keep pace with Moores law
 - Integrating more and more functionality on a chip has always existed as a trend

The solution



- Hire more designers across geographical boundaries
- Move from ad hoc block reuse to reusing aggregates of IP blocks and a integration platform
 - Helps reuse best architectures and design approaches
 - Reduces design effort and risk
 - Improves time to market
- Improved design flow methodologies.
 - Work with EDA vendors

But new problems emerge... (1/2)



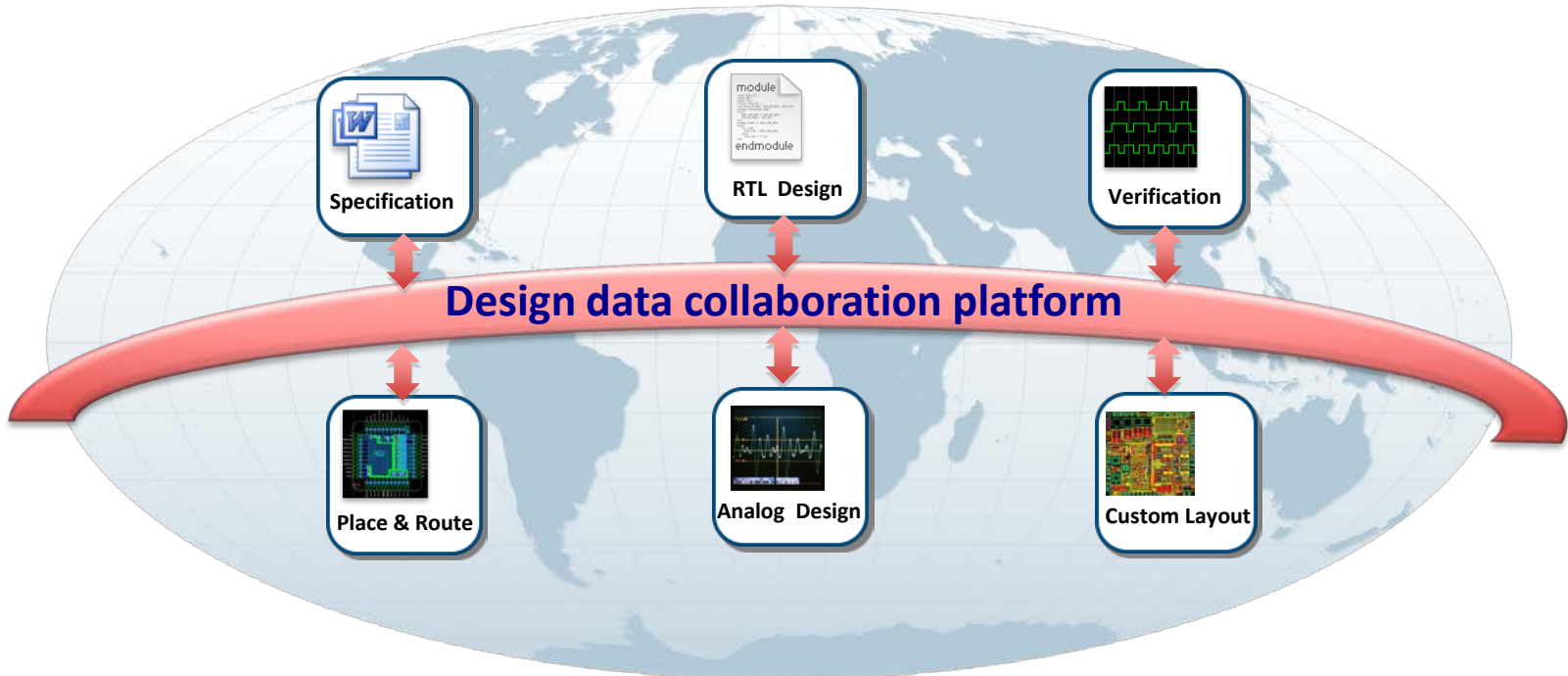
□ Remote design sites

- Designers in different sites must communicate & collaborate closely.
- Large amounts of data must be synchronized between the groups and individuals efficiently & accurately.
- Release and derivative management needs to be managed.
- Track changes & keep backup revisions

□ IP Reuse

- Ensuring functional correctness of the IP
- Performance - what if the final timing is not satisfied due to the IP
- Keeping track of the bug fixes and new updates to the IP's being integrated.
- Keeping track of the IP history when IP is partly modified
- Version Control
- Licensing issues

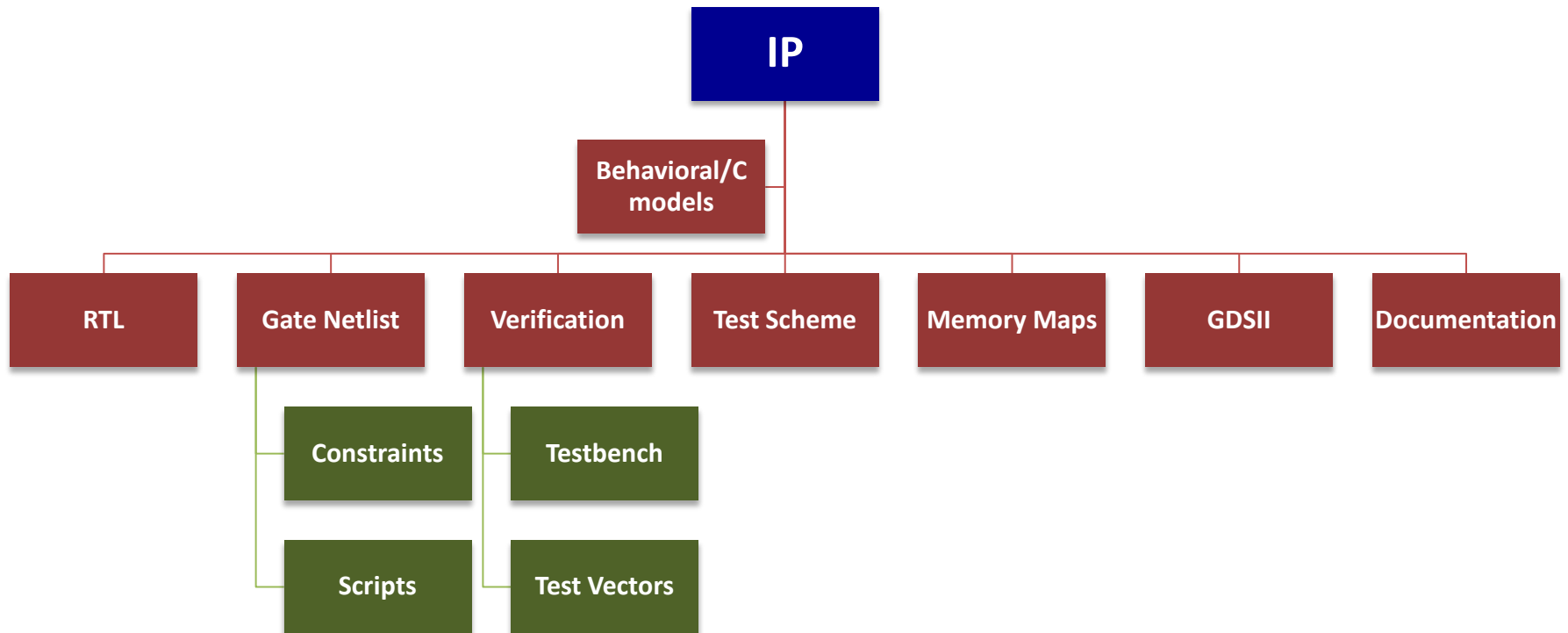
Streamlined design process



- A 'data bus' to streamline the design process and helps collaboration
 - Makes data synchronization & team collaboration efficient and predictable whether team members are in the same building or on the other side of the globe
- Integrated with version control, issue tracking & provides release & derivative management
- Better control and visibility – Improved predictability

IP Definition

- Traditional definition of IP



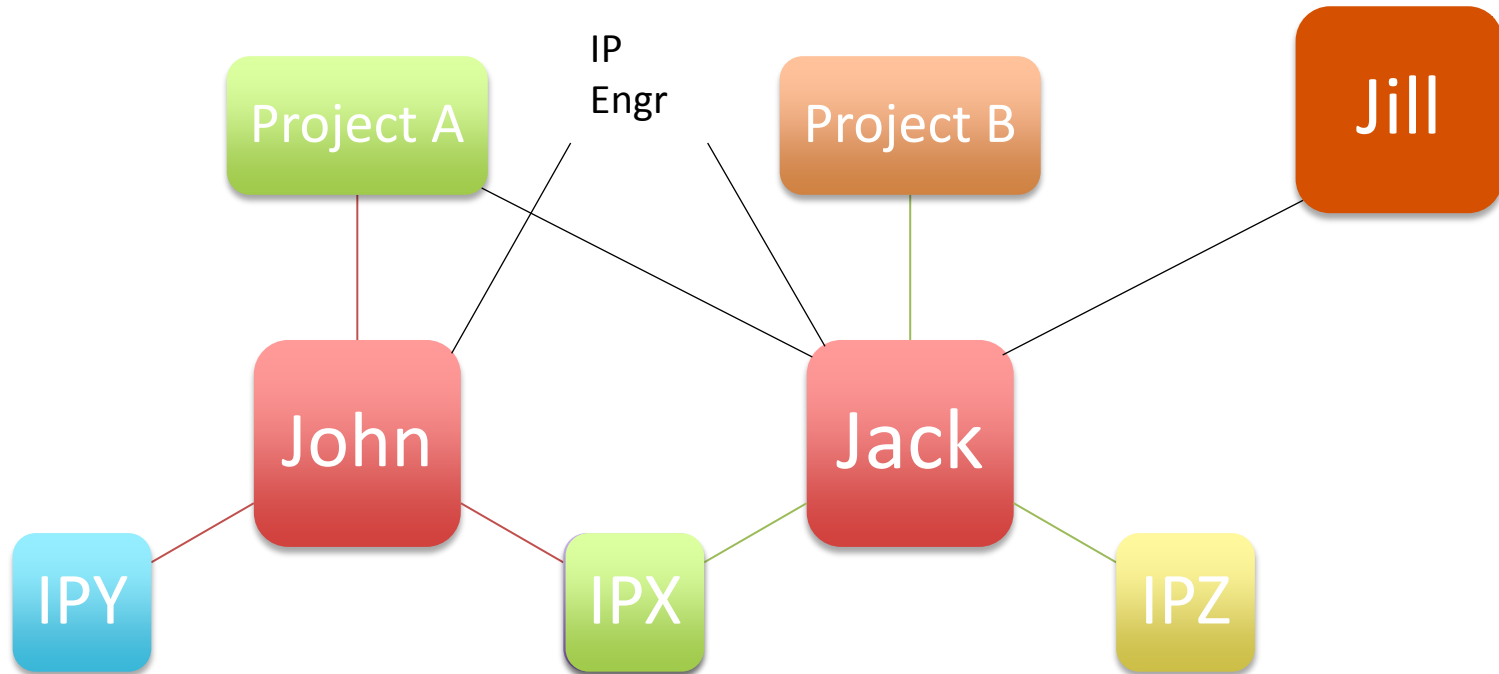
- Need to move beyond traditional definition of IP
- Must include scripts, methodologies
 - Scripts for stitching IO Fabric
 - Regression scripts
 - Synthesis scripts
 - Shareable documentation
- Enables designers to leverage off existing work instead of reinventing the wheel

- **Need to incentivize the designers to share their work**
 - Make designs reusable where possible
 - Share ideas, scripts, documentation, work-around for known flow issues

- **Carrot or the stick?**
 - Recognition (fame) is incentive to share knowledge/IP
 - Corporate mandate

- Provide a forum for sharing the IP's.**
- Enable designers to**
 - Follow IP's
 - Read/Review
 - Reference without modification
 - Download and modify
- Publish document or IP and share with**
 - Selected groups
 - Members of selected projects or IP
 - All

User centric model (2/2)



- Follow IP, Project, person or group
- News feed with updates from all followed sources
- Rating/like system to help grade quality

- **To increasing design reuse within a company**
 - Need to extend the definition of an IP
 - Motivate users to collaborate
 - Ability to leverage of databases
 - Move from a IP centric to a user centric model