The elephant in the corner

Ron Collett - January 24, 2012

Why do so many IC design teams commit to development schedules they know are not possible to meet? I ask this question because it's such a common occurrence in the semiconductor industry. (Don't read this article if you never miss schedules.)

Schedule misses are so common as to be an epidemic. It's as if unrealistic project plans are part of the DNA of the chip industry.

Design teams are loath to complain too much about pie-in-the-sky plans. That's because they gain little by raising red flags, even though they end up shouldering much of the blame when projects miss schedule. Moreover, complaints are often met with resistance by some of the organization's stakeholders. It's just better to play along with the charade, as it increases the likelihood their project plans will get funded.

Once published, such fanciful schedules and resource plans become officially sanctioned propaganda. Just about everybody knows their nonsense, but nobody dares to talk about those big elephants sitting in the corner. At least not until it becomes apparent that the tapeout date will slip—often by months. When it becomes clear that a particular project will badly miss schedule, the organization can collectively and plausibly deny it had any clue that the schedule was unrealistic.

So who's part of this conspiracy? The genesis is usually in the engineering organization but quickly works its way to marketing and senior management. It starts in engineering because project managers know that submitting resource plans requesting significantly more engineers than management will approve can be career-limiting. Mid-level managers don't get promoted for saying they can "do more with more." Yet, in order to finish projects within the time defined by marketing and customers, project managers know full well that additional resources are critical. I've personally seen myriad SoC projects staffed with only half the engineers they actually need to finish on time.

Does the conspiracy really start with engineering? I think not. More likely it starts with the leadership of the organization—albeit perhaps tacitly. Of course nobody could ever admit to fostering a culture of self-deception, even if unintentional. Likewise, there will never be acknowledgment, tacit or otherwise, of business strategies whose unintended consequence starves projects of resources—even though it's obvious projects demand more engineering resources to cope with skyrocketing complexity and ever-tightening market windows. I can't blame management for trying to keep the lid on spending—it's business. But failure to make the hard decisions about aligning the product portfolio to match resource capacity is fair game for criticism.

Of course somewhere in this mess sits the unfortunate customer. He's not savvy to the conspiracy—he never sees the elephant in the corner. He gets a glimpse only when it shows up sitting on his conference room table in the form of the chip vendor's mea culpa. Of course during this meeting, the vendor parades out the usual specious suspects that caused the delay, but everyone knows what really happened: A gross mismatch between resources, design complexity and schedule constraint. The consequence of the mismatch was an assumption of development productivity that far exceeded what the design team could realistically achieve. Semiconductor companies should get their R&D houses in order, as customers are increasingly on the hunt for elephants.

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