Best Practices for Minimizing the Risks and Hidden Costs of Globally-Sourced Software Development

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VA Software Background

- Publicly held since 1999 (Nasdaq: LNXU)
- Parent company of OSTG
- Flagship product: SourceForge Enterprise Edition
- Customers include Fortune 1000 firms in financial services, communications, manufacturing, government & defense...
- SourceForge technology also powers the efforts of the open-source community worldwide (SourceForge.net)
- Over 1 Million+ SourceForge users worldwide
Late 2001 Needs.....

- Continued development of 3.x product line
- Start development of 4.x product
- Fixed budget
- Bring new team swiftly up to speed
  - Swift ramp up
  - Co-development
  - New team takes on all 3.x lead development
  - 3.x moves into sustaining engineering mode when 4.1 is released
  - 3.x moves into maintenance mode when 4.2 is released
- Continued, efficient collaborative development with teams in Ukraine and Japan
What We’re Developing.... & What We Use

Global Development Dashboard™
- Visibility & Control
- Activity Tracking & Metrics
- Automated Escalation

Central Repository
with Threaded:
- Documents
- Code
- Audit Logs
- Discussions & Emails
- Task Assignments & Status
- Bug Status & History

Collaboration
- Discussion & News Forums
- Mailing Lists
- Sharing of Expertise, Data, Activities
- Threaded Knowledge

Process & Controls
- Security Controls
- Monitoring, Reporting, Tracking, Notification
- SourceForge Collaborative Development Process™

Project Tools
- Document Manager
- Issue Tracker
- Task Manager
- SCM (CVS)

Interoperability
- Microsoft Project®
- IBM Rational® ClearCase® & Merant PVCS®
- IBM WebSphere Studio®
- Other Tools

SourceForge™
Global Development Platform™
Key Offshore Requirements

- High quality and timeliness of work
- Ease of knowledge transfer and retention
- High flexibility regarding locale of project execution
- Strong IP protection
- Accurate & transparent project governance:
  - Comprehensive audit trail
  - High visibility and control of programs
- Identify and obviate costs that reduce offshore savings
  - Savings expectations as high as 80%
  - Danger: reality of 15-20%
Offshore Team: Build vs. Buy

- **Buy**
  - Swift start up (+)
  - Minimal infrastructural complexity (+)
  - Less control (-)
  - Higher cost (-)
  - Less risk, lower commitment (+)
  - Flexibility to swiftly add staff (+)

- **Build**
  - Longer to establish team and infrastructure (-)
  - Greater control and lower cost in the long run (+)

**Hybrid Model**
- Gain experience & prove it works
- Establish your own entity, lower cost, increase control
Establishing the Relationship

- **Decision: buy not build**
- **Swift process**
  - 12 weeks from go to close
- **Formal process**
  - Trial project
  - RFP
- **Informal process – getting to know the team**
- **Trial project was very enlightening**
- **Reference checks**

**Identify & Quantify Needs**
- **Document Requirements**
- **Candidate Identification**
- **Vendor Selection**
  - **Trial Project**
    - No cost to VA Software; Exercised both teams
  - **RFP**
    - Included contract term-sheet
  - **Contract**
    - Rate of staff turnover
    - “Shadow Staff”
    - Price adjusts as team grows
    - ......
Building The Relationship

- **Training**
  - Formal & informal
  - Staff exchange
  - “Eat our own dog food”

- **Process**
  - Defined within the development environment
  - Lots of examples & guidance; Lots of feedback

- **Relationship**
  - Brief Indian team on status of VA’s business
  - Teach “Push back”
  - Leverage the competency – incrementally add new project activities
Costs

- **Software Engineer**: $16 per hour / $30k p.a.
- **Lead Engineer, Project Manager**: $22 per hour / $42k p.a.
- *Beware of 9-hour workdays!*
- **Fully-loaded Software Engineer in Silicon Valley**: $120k p.a.
- **4 India-based engineers = 1 US-based engineer**
- **Travel to US**:
  - $1,500 transport per trip
  - $100 per diem
- **Costs included network bandwidth & majority of off-shore located hardware**
Efficiency

- New engineers took, on average, 40 working days to achieve full efficiency
- Upon allocation, shadow staff were at full efficiency within 2 – 3 days
- Efficiency of India-based staff averaged 80% of that of US-based staff
- Mutual efforts drove continuous quality improvements
- Location of senior resources makes a big difference:
  - E.g. When designing a major product component, a Product Designer/Manager was allocated locally in India.
- Effective on-shore leadership skills tended to transfer well to off-shore staff
Efficiency

- **Initial tasks usually bug fixing** – large, historic dataset made it easy to measure efficiency
  - Fix rate by severity & complexity of issue (function points, LOC’s etc)
  - Number of iterations to achieve signoff
Technology

- **Central, shared collaboration server**
  - Capture all e-mail in discussion forums
  - Document storage, versioning, review/approval
  - Task management synchronized with MS Project
  - Source code change management
  - Bug and enhancement prioritization, assignment and tracking

- **Instant Messaging**
- **Shared whiteboard & desktop for joint-development sessions**
- **Voice over IP (VOIP)**
- **Primary and backup broadband connection**
- **Off-shore cached code and data**
Lessons learned (1)

- **Offshore development can be very cost effective**
  - But not on day 1; Focus on incremental improvements
- **Significantly increased planning and execution flexibility**
- **Communication is a key to success**
  - Archives, change management and audit trails saved our lives!
  - Great source of materials for reuse elsewhere in the company
- **Management time was [initially] greater than we expected**
  - On-site project manager from vendor made a big difference
  - BUT we removed this role when the relationship was established
- **Match offshore vendor by size, cultural-fit and process-fit**
Lessons learned (2)

- **Treat the offshore team as you would treat your own staff**
- **Identify risks and establish mitigation plans early in the process**
  - Expect and plan for communications downtime: Autonomy
  - Example: Software Change Management system replication
- **Face-time is valuable for relationship building and can be very cost effective**
  - Example: Indian staff working in the US are paid at Indian rate
  - Incremental cost is travel and per diem
- **Ever-growing knowledge base makes staff re-assignment & project-locale reassignment easier**
Lessons learned (3)

- **High value in common processes, practices & terminology**
  - Established at project start, and accumulated over time

- **Regular process post-mortem and improvements**
  - Demand that offshore partner be very critical
  - Understanding that they are taught not to criticize the customer

- **Our use of a collaborative environment for offshore development has:**
  - Validated our own product (SourceForge) for offshore development
  - Helped us improve SourceForge for managing offshore projects
  - Allowed us to meet our cost and productivity objectives while retaining control and flexibility
Practical Experiences (1)

- **Auto-assignment of bugs & enhancement requests keeps work moving 24 x 7**
- **Automatic ‘Monitoring’ optimizes workflow**
  - ‘Monitoring’ = automatic notification of problem situations based on technical & business defined set of rules
  - Keeps your finger on the pulse
  - “File and forget”
- **All staff run standard, pre-defined reports**
  - Always on the “same page” based on real-time data
  - No “dead trees” that are out of date and have been “massaged”
Practical Experiences (2)

- **Centralized project management for very early visibility into possible problems**
  - Staff is rewarded for early identification of problems
  - Penalized for late identification
- **Friendly, Cross-team competition is valuable**
- **Watch out for weak middle-management**
  - In some cases, rapid growth of business has caused junior staff to be promoted faster than is appropriate.
- **Take advantage of non $-cost opportunities**
  - What no-cost/low cost ways can you help your offshore partner

*It’s your product, your cost, your business, your risk: Own it!*
Practical Experiences (3)

- “Knowledge Threading” is invaluable for Knowledge retention and transfer
Practical Experiences

Single, real-time “dashboard” view of all projects is invaluable.

“...the size of an organization is determined by the cost of gathering information.”
Nobel-winning economist Ronald Coase: