



Outline

- Who are Rare?
- The Shared Technology Group
- Lessons Learnt
- Was it worth it?
- Summary
- Questions?







Rare Ltd

Microsoft game studios

- Part of MGS
- Creatively Lead
- Multi Title
 - -2-4 360 teams
 - Prototype teams
 - DS / Handheld Team
- Support Teams
 - Shared Technology Group
 - Audio Department
 - Art Asset Group





Shared Technology Group

- Background
- Motivation
- Development
 - Initial plan and focus
- Review of initial approach







STG: Background

- History
 - "RnD" Setup in 1999; 5-6 inexperienced developers, 1 lead
 - Currently 20 developers, 2 leads and producer
- Used by all console titles since 2000
 - First title: Starfox (Game Cube)
 - Six major titles so far





STG: Motivation

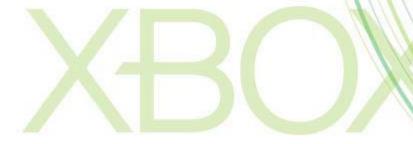
- Why was the group setup?
- Reduce Duplication
 - Over five different engines on N64
 - Development cost expected to increase
- Disseminate best practice
 - Best of breed
- Share research
- Support art and design





STG: Initial Plan

- Interview teams to see what they do
- Develop a shared engine ("r1")
- Ready for teams moving from N64 to GC
- Game development model







STG: Initial Focus

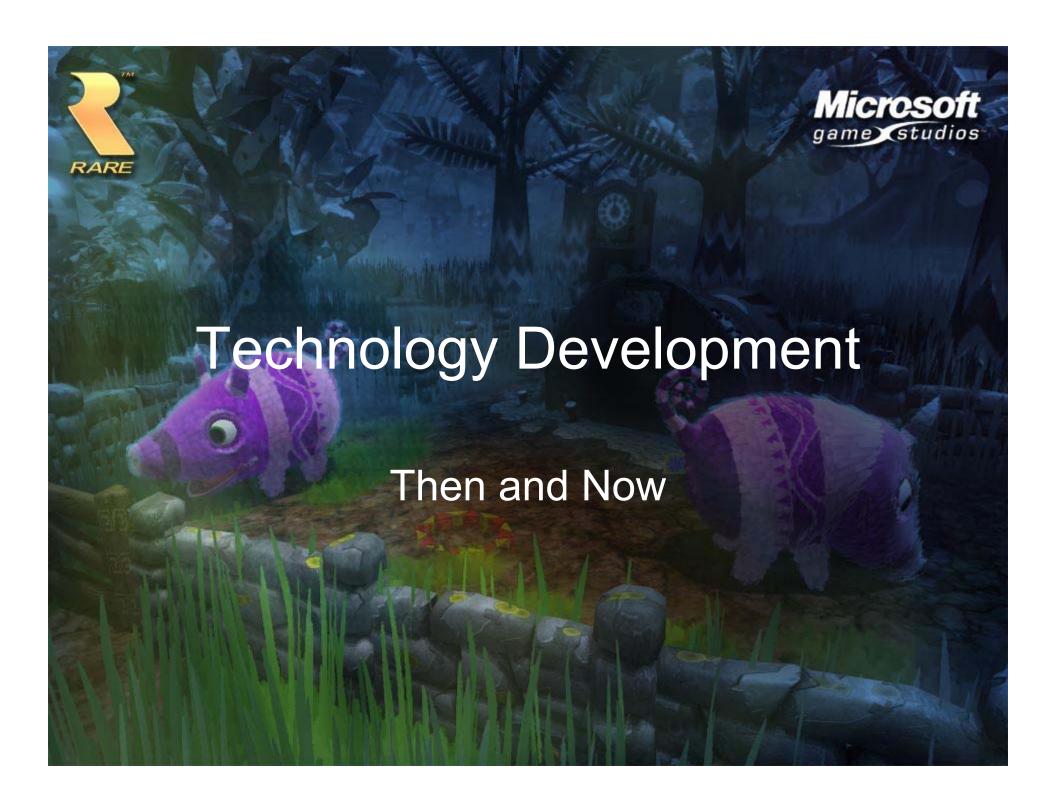
- Response to perceived problems
- Strong focus on art-pipeline
 - Reflection of creativity lead development
 - Respected art tool in previewer
 - Artist authored shaders
- Emphasis on runtime performance
 - Expectations from single platform history



Review



- Successes
 - Accurate art tool reflection
 - High runtime performance
- But key weak areas
 - Development Process
 - Distribution and Support
 - Client Relationships
- We examine these next







Technology: Then

- Artist directed technology
 - Confused communication
- Focus on "next-gen" features circa 2000
 - High-order surfaces, physics, ...
- Too much emphasis on runtime
 - Single platform culture
 - Naïve content expectations





Technology: Then

- Reactive development
 - Polish and optimisation postponed
 - Favours vocal minority
- Too little experience
 - Code quality
 - Focus on "cool" features



Technology: Now

- Pro-active Coordination with teams
 - Agile development (scrum-like)
 - Transparent "ring-fencing " of capacity
- Producer
- Peer code reviews
- Components based
- Technology is not the hardest part...





Component Based

- Not building an engine
 - Clients already had engines ...
- Set of independent components
- Allows for middleware
- Clients take suitable components
- Components support customisation
 - Important in getting support of graphics engineers



Component Catalogue

- Animation
- Rendering
- Art tool support
 - Plug-ins
 - Exporters
- Art-pipeline
 - Max and Maya

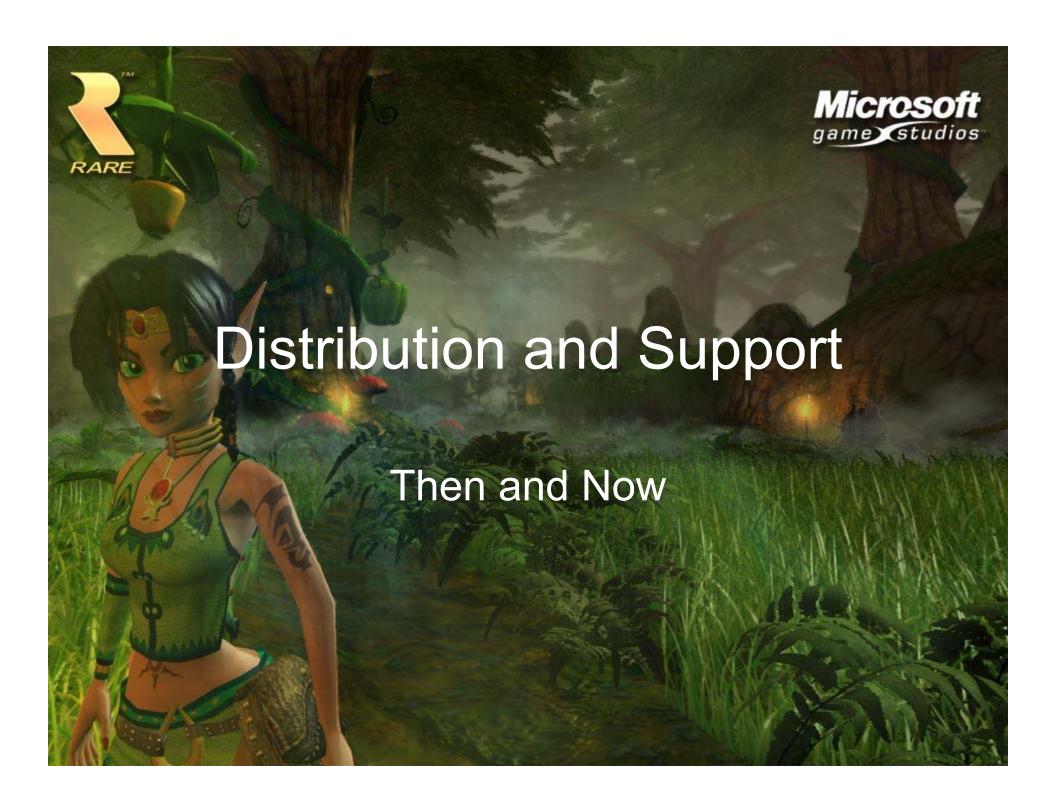
- Tools
 - Asset management
 - World building
 - Asset previewer
- Fonts
- Data reflection
- Collision detection
- Maths
- Profiling



Component Use



- Kameo: Elements of Power
 - Used all components, but with custom lighting
- Perfect Dark Zero
 - Custom Deferred Renderer built on top of existing pipeline components
 - Havok for physics and collisions
- Viva Pinata
 - Only animation and low-level components
 - Co-existed with an existing renderer





Distribution and Support: Then

- Did not really consider distribution
- Initially planned quarterly releases
- But taking a new version painful
 - Development cycles out of sync
 - Asset and code build times
- Poor model for team code changes
 - Re-integration of local changes



Distribution and Support: Now

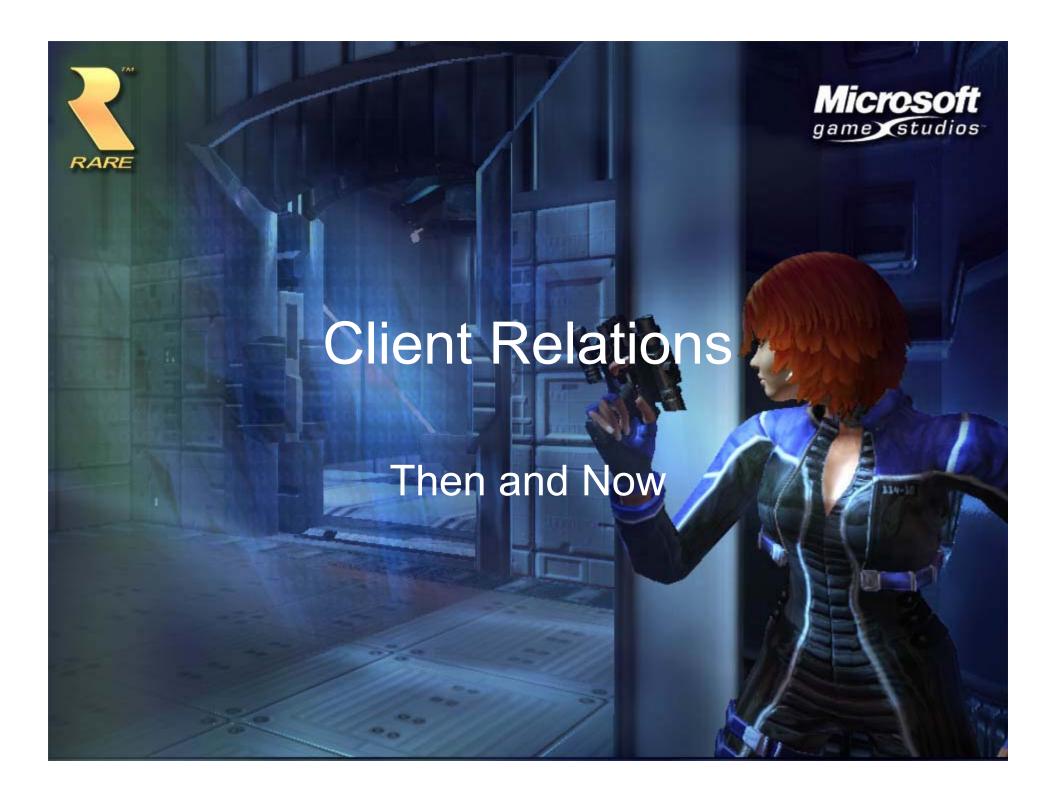
- We see ourselves as much a service as a product
 - "fire and forget" does not work for middleware
- Improved build quality
- Deprecation policy
- Better source control tools (source depot)
- Better customisation
- Case officers





The role of the case officer

- Developer allocated to each game in production
 - Prototypes do not generally need one
- Bridge between the game team and STG
 - Accountable developer
- Has a personal stake in the product
- Responsible for arguing the clients case
 - On-site customer in agile methodologies







Client Relations: Then

- Critically important
- STG did fit into the development culture
 - Competitive teams
- Poor feedback between teams and STG
- An Us-vs-Them situation developed





Client Relations: Now

- Involve teams in monthly sprint planning
- Quarterly product review meetings
- Game teams mentor STG developers
- Case officers again
- Informal monthly technical lead meetings
 - -with biscuits!
- All new starts come through STG
 - -Removes the "us-and-them" distinction





Was it worth it?

- Modest team sizes (≈30) outside of crunch
- Three titles shipped in last two years
- Game teams less technology focused
- Improved development atmosphere
- Preserved core values
 - Still art / design lead
 - Still have strong team identities





Future

- Binary changes still a problem
 - Case officers feel the pain
- Documentation
 - Recruitment is difficult
- Tools still need work
- Build times a problem
 - How to balance re-factoring against cost to clients?

Summary: Lessons Learnt

- Client Relationships
 - Critical to build culture where good will is assumed on both sides
 - Face to face meetings
 - Case officers
- Support and Distribution
 - Software as service
- Development
 - components
 - Agile development

