

Q&A For the Forbidden City: Beyond Space and Time

Q1. What is the goal of the project?

A1: The fundamental goal of the Forbidden City: Beyond Space and Time is to use IBM's technology and services solutions to showcase the rich history and beauty of the Forbidden City. Beyond Space and Time continues a tradition in IBM started over a decade ago of applying the latest technology innovations to problems of access, preservation, conservation, and art-historical inquiry in the humanities.

Q2. How did the partnership between IBM and the Chinese government start up?

A2: IBM's relationship with the Chinese government started locally with relationships in IBM China. The Palace Museum had long been interested in the application of 3D technology to its treasures and architecture and a virtual world project made great sense to them

Q3. Why is IBM involved?

A3: IBM partners with organizations around the world who exhibit a commitment to innovation in their fields, who are globally respected in their endeavors, and who would mutually enrich a partnership with IBM. China is the oldest culture in the world and should be made accessible to the world.

Q4. What makes the Forbidden City a unique virtual world?

A4: The Palace Museum, formerly known as the Forbidden City, is a very unique institution. Unlike a traditional museum of artifacts, it is a vast collection of spaces and structures meant to frame the complex inner workings of an imperial government. Moreover, the specific arrangement of structures in space — called Feng Shui or geomancy — is a vital part of the story of imperial life. For all these reasons, representing the Forbidden City as an inhabitable, vital space seemed both obvious and necessary.

Visitors to the Virtual Forbidden City will be able to take pre-defined tours from computer-controlled guides on topics such as dragons, the imperial gardens, Feng Shui and the highlights of the palaces. Visitors may also take tours from human tour guides in-world or lead their own tours of friends and families.

Beyond the experience of the actual Forbidden City, virtual visitors can partake of activities in the Virtual Forbidden City such as playing Wei Qi, the game of Go, and practicing archery. Lastly dramatized scenes may be watched such as of a court painter in the imperial garden or court officials meeting in conference with the emperor. Much

of the current Forbidden City, such as most building interiors, is still off limits to the general public. The Virtual Forbidden City opens these spaces up for exploration.

Q5. What are the advantages of presenting the Forbidden City as a virtual world as opposed to a traditional website?

A5: The Virtual Forbidden City provides a sense of space and scale that would be difficult to achieve with a website. Additionally, the storytelling and dramatization opportunities in a virtual world are more numerous than a website would offer. Lastly, the interactivity and communal experience that one may have in the Virtual Forbidden City (for example, taking a tour with one's family) is very difficult to achieve on a website.

Q6. How does the scale of the Forbidden City compare to other palace-museums? What challenges does this present to the project?

A6: The physical scale of other palaces that IBM has worked with, such as the imperial palace of the Russian czars, now the State Hermitage Museum, are less vast than the Forbidden City. So this presents a modeling challenge. But the real value of these spaces comes from the people who lived in them and the challenge in bringing these to life.

Q7. How does it feel to move through the spaces of the outer court? How will the Virtual Forbidden City re-create this experience?

A7: One of the key elements of "experience" that most technology solutions fail to provide today are the visceral reactions that arise when we get a subconscious sense of something - in this case an amazing place. Using the multi-user 3D technologies that make up the Virtual Forbidden City, we can begin to provide the sense of the awe-inspiring scale and majesty that the Forbidden City itself was built to instill in any who were allowed inside its walls.

Q8. How will the Virtual Forbidden City create an authentic experience of the spaces of the Forbidden City ?

A8: Our goal from the beginning has been to create an authentic and accurate view of important areas in the Forbidden City. Our team members in China spent a huge amount of time photographing and documenting the current Palace Museum and we are also fortunate that because of the importance of the Forbidden City there are many excellent reference works that our Palace Museum colleagues were able to share with us.

Q9. How is motion capture technology being used in the creation of the Virtual Forbidden City ?

A9: We are using motion capture to make more realistic certain traditional movements such as archery techniques, walking in various period footwear, and the general ways in which Ming and Qing [pronounced: ching] era courtesans carried their bodies.

Q10. What experience does IBM have in virtual world technology? What do you hope to learn from this project?

A10: IBM has one of the largest corporate presences in virtual worlds. We were also one of the first companies to provide virtual world solutions for clients and we're committed to developing a suite of offerings as we did during the infancy of the World Wide Web.

The Forbidden City: Beyond Space and Time is our largest virtual world undertaking right now. It allows us to test new technologies as well as theories on how to translate real world educational experiences into virtual world experiences.

Q11. What does the Forbidden City project tell us about the future of historic sites? Of global heritage?

A11: There is no single future of historic sites or of global heritage management. The Forbidden City demonstrates that technology can provide a spatial, immersive platform for the study culture where such an experience is especially valuable to full understanding.

In a broader sense virtual worlds make obvious that a given culture's importance is more than the sum of its artifacts or its material history. It is, rather, the confluence of people, places, things, and the stories of their interplay that together define cultural heritage. Virtual worlds do a very good job of presenting this confluence.

Q12. What language supports the Forbidden City?

A12: Currently it is supported in English and Chinese (Traditional and Simplified).

Q13. What computer systems can use it?

A13: Any contemporary system or a laptop linked to the Internet can run the Virtual Forbidden City and access the project website, including PCs, Macs, or Linux. There are some systems requirements such as a high speed internet connection and powerful video card, which would make one's virtual visit and user experience more engaging and enjoyable.

Q14. What platform is it running on?

A14: *The Forbidden City: Beyond Space and Time* is built utilizing SOA patterns and best-of-breed solution architecture. Premier IBM software products, such as WebSphere

Application Server, Advanced ESB (WebSphere Message Broker) and DB2, GarageGames' Torque Game Engine and open-source components power key features and services. To support highest level of performance, robustness, thousands of concurrent users and scalability comparable to that of the Massive Multiplayer Online Games, back end components run on one of IBM's state of the art computing platforms BladeCenters running Linux Blade servers.

Q15.How long did it take to develop?

A15: This project took three years to develop.

Q16.Is it free for users?

A16: It is free to visitors around the world and at the Palace Museum in Beijing.

Q17.How much did it cost to develop and who paid for it?

A17: IBM has donated \$3 million dollars in technology and services to create and complete this landmark cultural project.

Q18.Are there any other future plans for Forbidden City?

A18: The project was built to be extended and improved with additional content from the Palace Museum.

Q19.Are there plans to make this an education tool? In US? China?

A19: The virtual world has many educational features including guided, professional tours, historical scenes, and opportunities to dig deeply into rich content. IBM is open to working with educators to make the Virtual Forbidden City part of their curricula.