

TeamSpirit® Conferencing Engine for MMOG

Modern Massively Multiplayer Online Games (MMOG) set new requirements to software developers and publishers. Today's game players call for real-time in-game voice communication. To introduce voice functionality into a game, software developers have to deal with complex issues of voice over IP processing – effective voice coding, speech enhancement to make up for network impairments, server load control, bandwidth use efficiency, etc.

SPIRIT delivers a complete media conferencing technology enabling game developers and publishers to easily integrate the voice conferencing feature into a game.

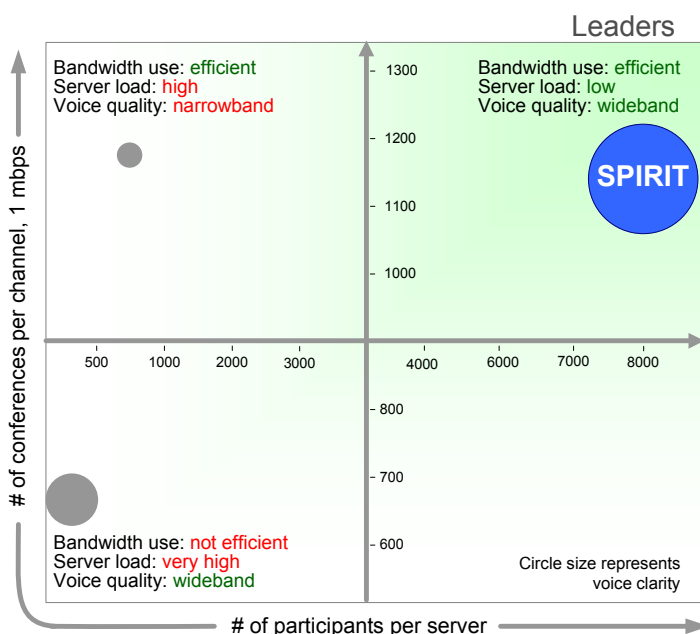
TeamSpirit® Conferencing Engine provides up to 20 times (!) higher server capacity than existing solutions, achieving up to 8000 simultaneous HD VoIP sessions per one quad-core Intel-based conference server. At the same time, the engine provides the best voice quality that competitive solutions simply can not match.

Key Solution Advantages

TeamSpirit® utilizes traffic much more efficiently than traditional multiplexing solutions thanks to its Multi-PASS™ (Prosodic Active Speaker Selection) technology. Analysis of prosodic speech characteristics combined with utterance dynamic modeling improves the accuracy of speaker activity estimations. The analysis is performed on the side of each speaker and does not load server CPU. Based on Multi-PASS data, the Engine dynamically “passes” the voice data from active speakers directly to other participants.

Since TeamSpirit® doesn't perform any CPU-intensive operations at the server side – encoding, decoding and mixing – the solution doesn't require powerful servers. With TeamSpirit's multi-server support, a distributed conferencing solution may be implemented to achieve even greater scalability.

The engine ensures the high voice quality by eliminating delay, transcoding, and noise aggregation on the server side. TeamSpirit® includes patent-free SPIRIT IP-MR™ wideband codec especially optimized for voice transmission over IP networks, robust to packet loss and ideally suited for the Engine's smart multiplexing. A truly multi-rate codec, SPIRIT IP-MR™ supports bitrates from 7.7 to 34.2 kbps. The payload of the SPIRIT IP-MR™ codec is currently being standardized by the Internet Engineering Task Force (IETF).



Benefits

- Very efficient traffic usage
- High scalability for massive deployment
- Low server CPU requirements
- High voice quality
- Patent-free SPIRIT IP-MR™ codec
- Comparably low cost of deployment and ownership, and high scalability

Key Features

- Complete pre-integrated client-server solution
- Multipoint conferencing
- Excellent voice quality even on poor networks
- Resource-efficiency to lower infrastructure costs
- Game-friendly API
- Cross-platform availability

Additional Features

- Smooth voice changing with the voice quality preserved
- 3D sound positioning
- Synchronization of character's mimics and voice

The SPIRIT's Engine also provides additional advanced sound features to enhance the players' gaming experience:

- Voice changing to make the voice suit the player's character/role in the game; the voice is adjusted smoothly, while the high voice quality is preserved without any artifacts
- 3D sound positioning: the sound is heard from the same location where the character is seen
- Changing the player's voice according to the character's current surroundings/landscape
- Real-time synchronization of the character's mimics and voice; in case no mimics (articulation) is available for the character, the voice can be synchronized with the character's head movements (for example, moving head for the speaking character)

TeamSpirit® Conferencing Engine for MMOG has a high-level game-friendly API for easy integration into the target application and time-to-market acceleration.

Specifications

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|----------------------------------|--|---|---|
| Audio Codecs | <ul style="list-style-type: none"> ▪ SPIRiT IP-MR™ ▪ G.711 | | |
| Media Transport | <ul style="list-style-type: none"> ▪ RTP/RTCP, HTTP | | |
| Signaling | <ul style="list-style-type: none"> ▪ Jingle* ▪ Integration with game signaling protocol | | |
| Telephony Algorithms | <ul style="list-style-type: none"> ▪ DTMF over RTP in-band (<i>ITU-T Q.23</i>), <i>out-of-band (RFC 2833)</i> | | |
| Network Optimization | <ul style="list-style-type: none"> ▪ Adaptive Jitter Buffer ▪ Automatic Rate Selection ▪ Frame Packing ▪ Packet Loss Concealment (ITU G.711 annex I compatible) ▪ RTCP Statistics & Logging | | |
| Client Side Functionality | <ul style="list-style-type: none"> ▪ Full-duplex ▪ Acoustic Echo Canceller ▪ Anti-howling Control ▪ Auto Echo Cancellation Mode Detection ▪ AGC, CNG, VAD ▪ Noise Canceller ▪ Voice Changer ▪ 3D sound positioning ▪ Synchronization of character's mimics and voice ▪ Non-linear Processor ▪ PC Clock Drift Control ▪ Sample Rate Converter (Resampler) ▪ Sound Card Control | | |
| Server Side Functionality | <ul style="list-style-type: none"> ▪ Multiplexing and mixing modes support ▪ Prosodic Active Speaker Selection – PASS ▪ Active Speaker Selection – FCFS ▪ Participant rights (speak/ listen) ▪ Mute any participant ▪ Recording and Playback ▪ Codec transcoding and rate matching | | |
| Supported OS | Server <ul style="list-style-type: none"> ▪ Linux Red Hat 9 ▪ Windows 2K/XP | Client <ul style="list-style-type: none"> ▪ Windows 98/2K/XP, Vista, Windows 7 ▪ Linux ▪ Mac OS X | Mobile Client <ul style="list-style-type: none"> ▪ Apple iPhone OS ▪ Windows Mobile 5.0, (including SmartPhone Edition), 6.x ▪ Windows PocketPC 2003 ▪ Symbian ▪ Linux* |

* Module is licensed from SPIRiT separately

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