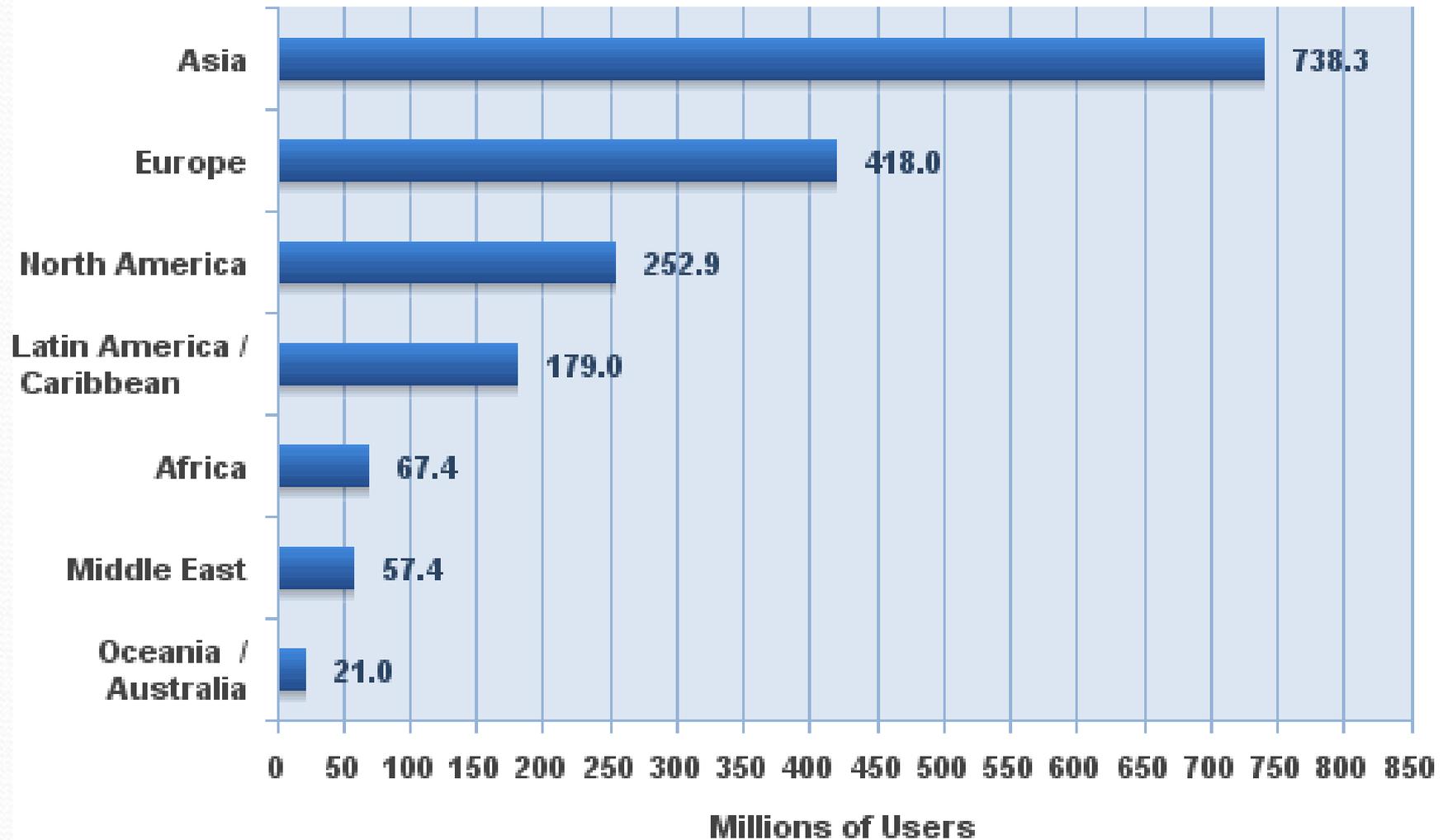




Internet for multimedia content

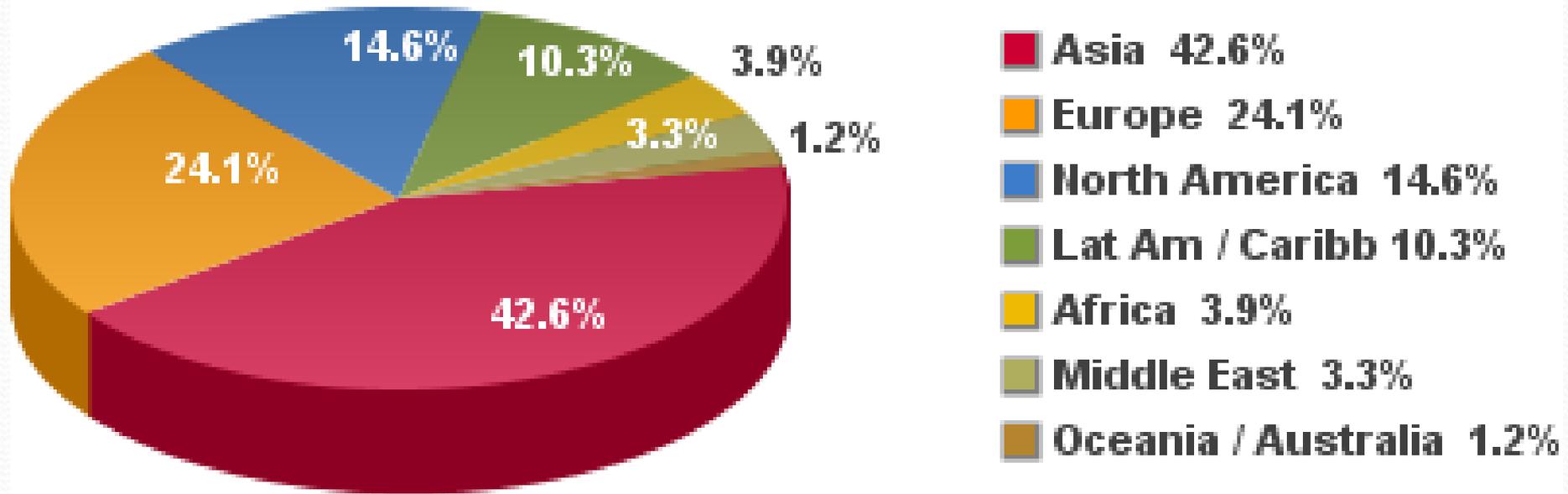
Yogendra Pal
Chief Engineer, All India Radio

Internet Users in the World by Geographic Regions



Source: Internet World Stats - www.internetworldstats.com/stats.htm
Estimated Internet users are 1,733,993,741 for September 30, 2009
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World Internet Users by World Regions

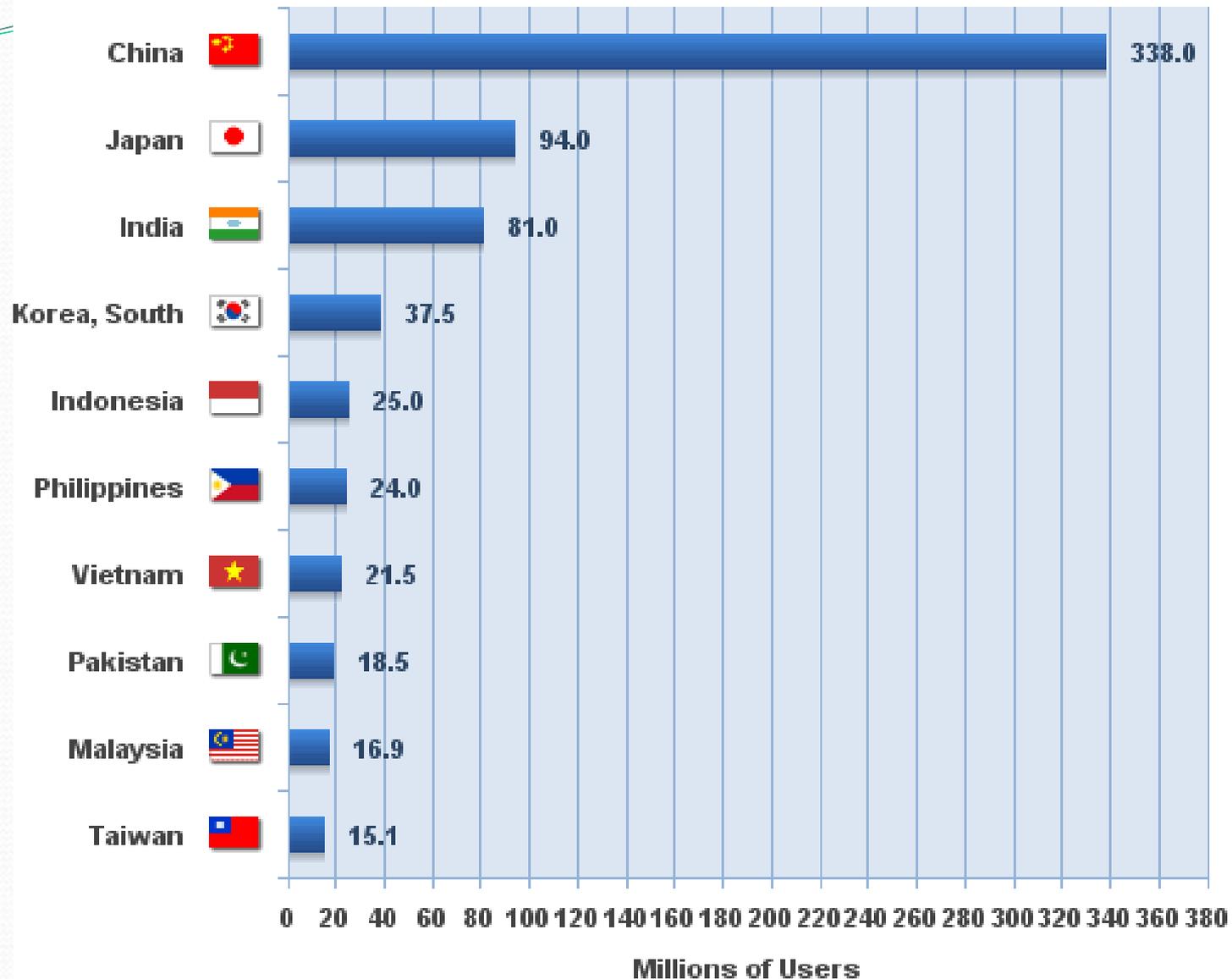


Source: Internet World Stats - www.internetworldstats.com/stats.htm

1,733,993,741 Internet users for September 30, 2009

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Asia Top 10 Internet Countries - 2009 Q2



Source: Internet World Stats - www.internetworldstats.com/stats3.htm

Estimated Asia Internet users 704,213,930 for 2009 Q2

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Audio on Internet -- Statistics

- In 2008, 13% of American population listened to radio online compared to 11% in 2007

(Source: *The Earth Times*, April 9, 2008)

- It is estimated that:
 - 13,000 stations currently available on Internet
 - 150 million people are listening Internet Radio everyday

Media Streams

On Demand	Live
File saved to a hard disk & then played from that location	Information sent straight to computer or device without saving the file to a hard disk
Files saved on servers/hard disks for extended amounts of time	Available at one time only

Streaming

- Attempts to display media on computers date back to mid-20th century
- Little progress made for several decades, primarily due to high cost & limited capabilities of computer hardware
- By 1990, consumer grade PCs became powerful enough to display various media but media was delivered by downloading
- During late 1990s & early 2000s, advances in network bandwidth, combined with power of computers, made streaming media practical & affordable



Protocol Issues

UDP

(User Datagram Protocol)

- Sends a media as a series of small packets
- It is simple & efficient, but there is no mechanism within the protocol to guarantee delivery
- Receiving application to detect loss or corruption of data and recover it using error correction techniques
- If data is lost, the stream may suffer drop outs

RTSP (Real-time Streaming Protocol), **RTP** (Real-time Transport Protocol),
RTCP (Real-time Transport Control Protocol)

- Developed specifically to stream media over networks
- RTSP runs over a variety of transport protocol whereas RTP & RTCP are built on top of UDP

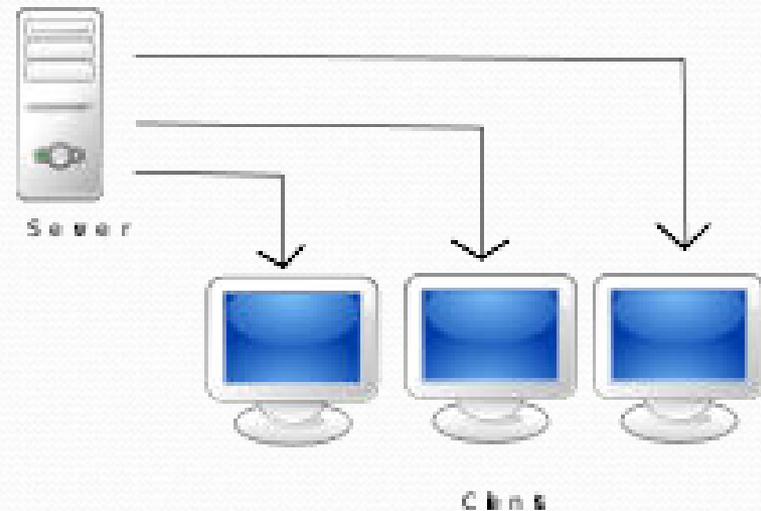
TCP

(Transmission Control Protocol)

- Reliable protocol
- Guaranteed correct delivery of each bit in the media stream, but with retrials
- Complex to implement
- Results in buffering
- Loss if buffering delay exceeds 200 ms

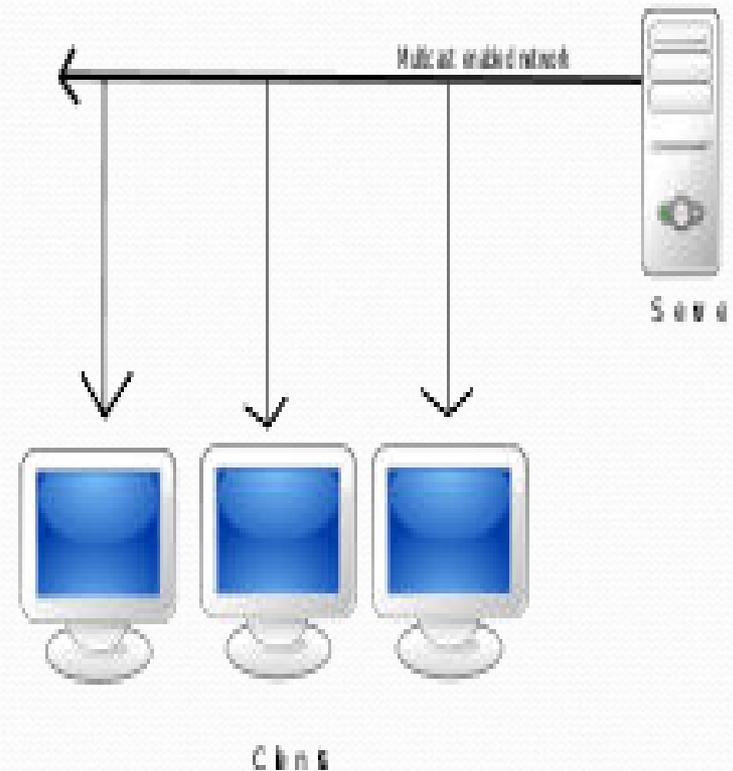
Unicast Protocols

- Sends a separate copy of media stream from server to each recipient
- It is norm for most internet connections, but does not scale well when many users to view the same program concurrently



Multicast Protocols

- Sends a single stream from server to a group of recipients
- Depending on network infrastructure & type, multicast transmission may or may not be feasible



Media Players

- Real Player
- Media Player
- Quick Time Player
- VLC Media Player
- Adobe Flash Player
- Microsoft Silverlight



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Top Headline

Rajya Sabha creates history; passes Women's Reservation Bill with thumping majority

History was created today with the Rajya Sabha passing the Women's Reservation Bill with more than two thirds majority. Out of 187 members present in the House, 186 voted in support and one against the bill. UPA ally Trinomool congress abstained from voting. Intervening in the debate on the...



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TENDERS

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Lok Sabha adjourned amidst uproar by some members on Women's Reservation Bill



The Women's reservation bill continued to rock the Lok Sabha for the second day today leading to repeated adjournments following uproar by the SP, RJD and some JD(U) members. The House was finally adjourned for the day after adopting the...

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Vitamin D: Nature's best antibiotic



India-Russia to sign series of agreements during Putin's visit



India and Russia are to sign the first of a series of agreements for the development of fifth generation

हिन्दी



News Front Page

HEADLINES: **Lalu**, -
Tuesday 09 March, 2010.

TOP STORY



Rajya Sabha passes historic Women's reservation bill

Despite vociferous opposition, the Rajya Sabha on Tuesday passed the historic Women's Reservation Bill that reserves 33 per cent legislative seats in the Lok Sabha and state Assemblies.

OTHER TOP STORIES

- ▶ India stands by Copenhagen Climate Change Accord: Ramesh
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HEADLINES



7 errant MPs suspended from RS; Proceedings of both houses disrupted

Seven members of Rajya Sabha belonging to SP, RJD, LJP and an unattached MP were suspended on Tuesday for remaining part of the budget session for their unruly behaviour in the House



US VP Joe Biden arrives on 4 day visit to Israel

US Vice President Joe Biden began a visit to Israel and the West Bank Monday, assuring Israelis in a newspaper interview that Washington would close ranks with them against any threat from a nuclear-armed Iran.

DAILY POLL

Do you think that England will win the Hockey World Cup being played in New Delhi?

- Yes
- No

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CURRENT AFFAIRS



Status of Women in India from Report to a Bill

The 14-year journey of the

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OVER TO THE LOK SABHA

Rajya Sabha creates history, women's quota bill passed

History was created in the Rajya Sabha when it voted by an overwhelming majority a Bill to reserve one-third of seats in Lok Sabha and assemblies for women after government pushed ahead with it, ignoring possible threats to its stability and after eviction of troublesome MPs opposed to it. **Who said what on women's quota**

- Brinda lambasts Mamata; brands her as opportunistic
- Opposition calls Women's Bill "historic"
- Lalu to give letter of withdrawal of support to Prez tomorrow
- Trinamool Congress MPs abstain with eye on Bengal polls
- Read more related stories...

Govt took 'huge risk' on Women Reservation Bill: Sonia

Relieved and happy at the passage of Women's Reservation Bill by the Rajya Sabha, Congress President Sonia Gandhi today said the Govt had decided to take the

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Hot tips for new and old non-fiction.

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Upcoming Matches



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THE TIMES OF INDIA

LICINTG009-1005

Rajya Sabha passes Women's Reservation Bill

AGENCIES 3 hours ago
History was made in the Rajya Sabha on Tuesday as the Women's Reservation Bill, ensuring 33% reservation to women in Parliament and state legislative bodies, was passed. The focus shifts to Lok Sabha now. |

- **14-year-journey of Women's Reservation Bill**
- No threat to UPA stability, says Sonia
- **Blog: Thy Bill Be Done**

CIA warns India, Brazil of al-Qaida threats

PTI 2 hours ago
The CIA on Tuesday warned India and Brazil of 'emerging threats' from al-Qaida and Taliban, though the terror outfits are 'on the run' due to extreme pressure exerted on them in Afghanistan and Pakistan. |

- Pakistan arrests US-born al-Qaida spokesman |
- US arms supply to Pakistan a concern: India



OTHER TOP STORIES

- Osmania student commits suicide for Telangana |
- Pak govt sponsored 26/11 attack: Prosecution
- H-1B visa applications to be accepted from April 1
- Husain applies for Overseas Citizenship of India card

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Top Stories

★ [Gadkari unveils new BJP team, a mix of old and young](#)

Sify - 57 minutes ago
 The Bharatiya Janata Party (BJP) Tuesday unveiled new president Nitin Gadkari's leadership team, a mix of the young and the old with a view to win the next Lok Sabha battle.
[Nadda to quit HP Ministry to join as BJP General Secretary](#) Zee News
[Gadkari list makes some happy but others crib](#) Press Trust of India
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The Hindu

★ [Mayawati's garland worth crores attracts scrutiny by the IT dept](#)

Daily News & Analysis - 2 hours ago
 PTI New Delhi: The huge garland that Mayawati wore at a public rally in Lucknow yesterday caused the disruption of the Lok Sabha today even as the estimated value of the currency notes of which the garland was made varied from Rs21 lakh to Rs15 crore.
[Video: Lucknow painted blue for Mayawati's rally](#) [YouTube](#) NDTV.com



The Hindu



Current Cricket Matches



NZ 238/10(44.1) | Aus 202/4(31.1) (Australia won by 6 wickets (D/L method)) [scorecard](#)
 Eng 259/2 - KP Pietersen* 58, AN Cook 120 | Ban yet to bat [scorecard](#)
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[STF chief arrested over extortion case](#)

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- Merkel seeking speculator limits
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- Aer Lingus fares and profits fall
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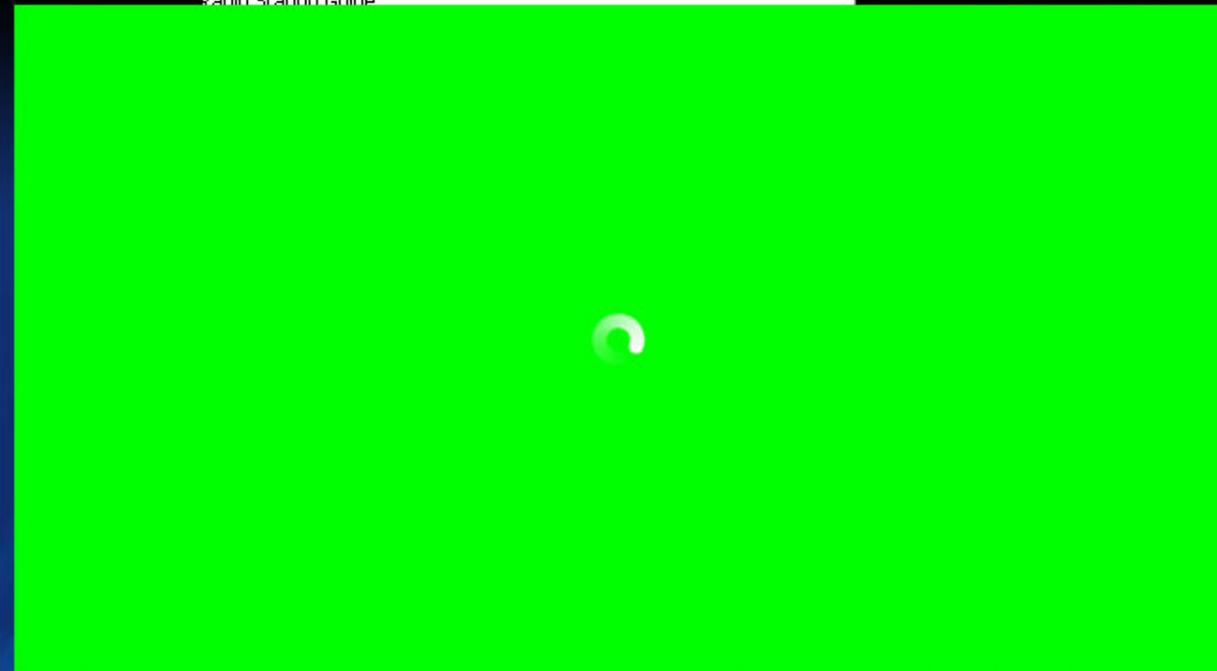
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Internet Radio Device

A 'no-computer' option for listening to audio media streams



Mobile TV (updated!)



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WWITV: World Wide Internet TV

Your Portal to watch live and on demand online TV broadcasts.
Required bandwidth: From 28.8Kb/s to 2000Kb/s
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Watch live online TV channels broadcasting on the Internet.
wwiTV offers a Huge collection of free Live internet TV stations streaming on the internet.

- Available TV channel categories:
All TV channels | Educational | Entertainment | Government | Lifestyle | Music | News (live)
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Adaptive Streaming

Internet connection speeds vary widely and speed of each type of connection also varies depending on conditions

- Adaptive streaming is a process that adjusts quality of media delivered to a web page based on changing network conditions to ensure best possible user experience
- Adaptive streaming simplifies content creation & management making streaming media easy to deploy and does not require any coding

Today's match is brought to you by *Coca-Cola*



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MPEG-4 SLS (Scalable-to-Lossless Coding)

- World's latest adaptive Streaming Technology
- Demonstrated in Singapore on 7th Jan 2010
- Consumer no longer have to trade off media quality with streaming speed
- Single encoded file can be played back on different environment with bit-rate cap determined by the server provider

Audio/Video on Mobiles

BBC World Service - Institutional - How to listen via your mobile phone & other mobile services - Windows Internet Explorer

http://www.bbc.co.uk/worldservice/institutional/2009/03/000000_mobile.shtml

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Mobile language services

If you are unsure, please check with your operator before you start browsing.

The BBC also provides mobile news services in more than 15 other languages. For a full list and links to these sites, visit the following page:
<http://www.bbc.co.uk/worldservice/languages/mobile/>

Listening via internet radio-enabled mobile phones

Listeners with internet radio-enabled mobile phones can listen to a range of BBC services.

There are three channels available: BBC World Service in English, BBC World Service's 24-hour rolling news in English, and BBC Arabic.

New and recent models of Nokia phones will come with the pre-installed radio application which can be found in the Applications menu. The BBC services are listed in the station directory.

For all other phones, you should visit this page, **internet radio and mobile links**, where you will see links to our live streams and on-demand programmes in MP3, Real and Windows Media formats.

How to get news on your mobile or PDA

The BBC provides an international mobile news service which works

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Thank You

Q & A?

For Further details, please contact:

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Email: yogendrapal@gmail.com