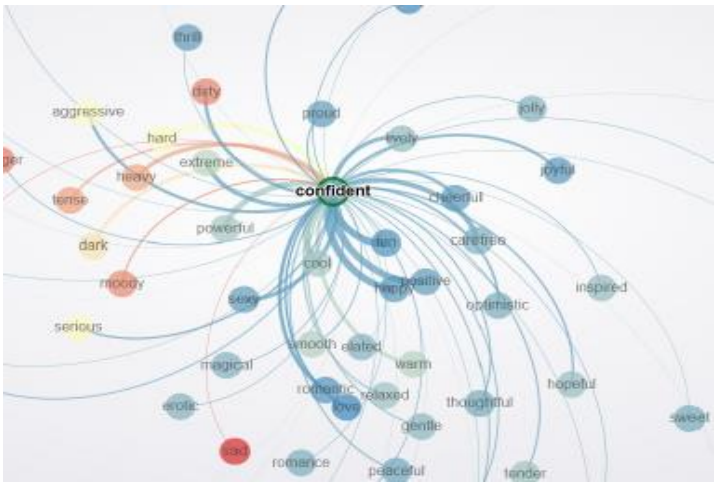
Case Study: N8 HPC and BBC

In The Mood for Music



Testimonial

"The entire dataset was processed in only six hours, creating the world's largest time-varying musical feature database. The university's contribution of cutting edge facilities and outstanding support was of huge benefit in getting the project completed and we look forward to working with them again."

- Chris Baume, BBC R&D

Project

The BBC broadcasts more than 200,000 different pieces of music every week. With so many tracks to choose from the ability to quickly navigate its vast digital music collections and select the right piece is becoming increasingly important. One of the ways of categorising music is by mood – the characteristics associated with a piece of music. But, with an online music library of more than a million songs, listening to and labelling each one manually would take many years. To try and address this problem, BBC Research & Development, in conjunction with Queen Mary University of London and I Like Music, developed novel software that can model the mood of a track based on its tempo, key and more than 36,000 keywords that define the emotional response it elicits in humans.

To extract and analyse musical characteristics from 128,000 music files using the new software would have been difficult on local resources. As they did not have the computing capability to analyse the files in house. The BBC approached the N8 HPC team at the University of Manchester to solve the problem using high throughput computing. The HPC facility was used to simultaneously run thousands of tasks to analyse each music file. A total of 128,000 tasks were run, each performing 53 separate analyses, reducing the total projected analysis time from approximately one and a half years to just six hours.

Partners

Chris Baume – Research and Development, BBC.

Dr Michael Bane – Research I.T, University of Manchester.

Impact

Access to the unique equipment and expert skills of the N8 HPC team enabled the BBC to analyse thousands of music files using its new software in the quickest and most cost-efficient way. Long term impact includes: easier and quicker navigation of the online music library; reduction in time used on data analysis, the ability to maintain and continually update the music collections; and access to a larger selection of music.

Success

Working with the BBC during the N8 HPC's pilot stage gives the new service added credibility, as well as strengthening the university's links with the BBC and highlighting further opportunities for potential collaborative projects. A more cost-effective way of managing the BBC's online music library will ultimately benefit all license fee payers and ensure that whether they are listening to a radio play or watching a sports programme, they will always hear the perfect music to match the mood.

BBC

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N8 HIGH PERFORMANCE COMPUTING