1. INTRODUCTION

Blackpool Pleasure Beach is a forty two acre site situated in the South Shore area of Blackpool. Surrounded by mainly residential properties, our season lasts from early March to early November. The park boasts one hundred and forty rides and attractions which bring an average of six point seven million people to the site yearly.

2. BACKGROUND

The original system was installed over twenty five years ago with Westrex amplification. This system was extremely labour intensive as the adjustment of level had to be performed manually with calls from operations managers via radio, such as 'It's too quiet here' or 'Far too loud over there.' Such tribulations, combined with numerous occasions when the prevailing westerly wind would blow much of the sound over our perimeter walls, causing much consternation and annoyance amongst the local residents, it rapidly became obvious that something had to be done to remedy this situation.

We attempted to set levels, that attempted to accommodate the needs of the various parties, but to no avail. Finally the Environmental Health Officer arrived, dB meter in hand (we actually got on quite well!) and we finally realised that our twenty five year old sound system had to go.

3. THE NEXSYS SYSTEM

As a company we realised that we had to look towards an automated system. But did we know exactly what we wanted?

After debating the issue, we came to the conclusion that, whatever we decided upon, it would have to be computer controlled. The question was, could anything we installed be able to interface with our original equipment? The answer was, of course, a resounding NO!

The search began. A casual conversation led us to contact Crest Audio. Crest, we had heard, had a 100 amplifier computer controlled system named NEXSYS installed in, of all places, the Kremlin Palace in Moscow. What was NEXSYS?

NEXSYS is a simple to operate and intuitive computer controlled system, which allows the user to monitor and control Crest amplifiers and MIDI controllable products. NEXSYS tracks system performance and executes numerous statistical functions via the event monitor module to determine whether the overall system is operating in a safe and optimal manner. Load monitoring is an optional function of NEXSYS which allows the system operator to plot impedance versus frequency curves then store them for comparison.
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to later curves. This required an IBM or compatible PC with at least eight megabyte of RAM running Windows 3.1 or higher and a color VGA or SVGA graphics card and monitor.

We were invited to attend a demonstration of the system and were initially impressed. Tim Chapman from Crest then pointed out that the system was still in its development stage, so reluctantly we continued our fruitless search amongst other companies, seeking any other system that was able to offer the features promised by Crest’s facility.

Finally we approached Crest once more, to provide a demonstration rack for evaluation. After again stressing that the system was still under development Tim Chapman agreed, and thus Blackpool Pleasure Beach became Crest Audio’s European Beta Test Site.

We installed the system during March 1992. The rack of Crest amplifiers were placed in our central amplification room. The computer itself was fitted in the electrical department, controlled on a 485 Bus connected by twisted pair, and utilising our internal telephone system wiring. We worked quickly, breaking the park area down into four areas, one for each point of the compass. We wrote snapshots, a predetermined arrangement of settings of each individual amplifier, and accessed by macro keys. Adequate levels were programmed for all conceivable situations, such as varying states of noise on the park grounds during different times in the week, with separate settings for the busy weekends, as well as the previously mentioned prevailing westerly wind. We even had a Mrs Simpson level, named for a lady who called the park every day to complain to the Park Office about the noise level. She is now suitably impressed, and we rarely hear from her, but we have retained that particular snapshot, just in case of a sudden typhoon hitting the park, and directing all of our sounds into her garden.

We have since added a MIDI controller to the system, which our park office staff can access remotely whilst they undertake their other duties of keeping communications flowing on the park without approaching the computer directly.

Another feature made available to us is the Event Monitor, which provides a complete and continuous log of all system changes, as well as a record of amplifier performance. This information is collated into site maintenance records.

Almost as soon as the system was on line, working continuously on a daily basis, the ground’s sound stopped being a source of continual problems, and the company began to see the knock-on effects on the rides and devices themselves, such as the Ghost Train, The Goldmine, and The Greatest Show on Earth, etc.

Previously, we had always experienced problems with broken and accidentally cut cables, vandalised and stolen speakers, and so on. The only way to check the system at that time was to literally walk around each and every device every day, manually checking the correct operation of each of the separate systems, a labour intensive task, to say the least.

We awaited eagerly the completion of Crest’s load monitor system. The facilities are ex-
extremely impressive, and the benefits easy to visualise.

Using the NEXSYS system, we can test for driver failures, missing components, or driver or load degradation. The provision of a log on all system load testing in conjunction with the event monitor gives complete system status on a daily basis, alerting the user to any possible problems that can be corrected before the opening of the park grounds to the public.

The load monitor is, in essence, simple to use. A sweep can be run, twenty Hertz through to twenty kiloHertz, in user defined steps through any amplifier channel. The end result is an impedance curve against frequency, visually defining the amplifier load. When an upper and lower tolerance value is defined, (two percent, five percent, etc), then if the tolerance level is exceeded, the system alerts the user to this fact. This is effective when one of the joiners forgets to remove a speaker cable from the piece of wood he is attempting to saw through, or a sub-contractor is trying to relieve the company of one of its more expensive speaker cabinets.

Due to the success of the system, the company decided that NEXSYS was indeed the way forward; we purchased the system and began the task of bringing the individual devices onto NEXSYS with load monitoring, before sitting back and assessing what we had created.

a) We had individual channel monitoring on both input and output, with a muting facility, remote operation, and two channel accessories in real time, with VU metering on an adjustable scale on both the input and output sides.

b) The load monitor as we have previously discussed.

c) The facility for creating snapshots.

d) Amplifier warning status for IGM, clipping, and user set thermaling, and DC protect.

e) The MIDI interface for remote operation away from the computer.

f) Event monitoring and system activity log.

As we bought more Crest amplification and brought more rides on line, we began to experience problems. The system began to have a problem of falling over and locking up (Usually we have a problem with our patrons falling over and being locked up!).

Panic began to set in. Luckily, it was short lived. Damage limitation kept the amplifiers set to the last received snapshot setting. This is very useful in case of power loss or other bus or comms failure faults.

This particular problem caused great concern because system expansion was proceeding at a frightening speed. We expressed our worries to Crest USA, who recommended that a modem and a small comms package and a convenient time difference between East Coast USA and Britain would alleviate the problem. Whilst direct on line to
the Crest factory, our existing problems were ironed out, whilst at the same time we were made aware of possible future problems in our use of the system. This was in fact extremely reassuring, and, in essence removed all of our software glitches.

We took this opportunity to bring to Crest's attention some custom software changes we required, and that we hoped they could provide, mainly attaching snapshots to the system clock, and interfacing the anemometer and wind direction equipment presently installed upon our new device, the Pepsi Max Big One. The anemometer and wind direction is taken from instruments on the Big One. It is sent via modem to a display unit in our Park Office, then via RS232 line into the PC in ASCII format. Once installed it can then be interfaced with the MIDI section of NEXSYS, in order to call individual snapshots for the desired wind speed and direction. This is presently still under development. Snapshots can also be called by utilising the system clock according to the relative time and date.

We are also utilising the monitor section of NEXSYS portfolio, which allows the Park Office staff to actually listen to any of the particular sounds distributed around the park grounds.

At the present time, after three and a half years of development, installation, occasional consternation and frustration, we are presently working towards MIDI controlled equalisation and various forms of signal processing. Also, exploring the possibility of expanding our ground's sound system from eight zones to a total of sixteen, presently completing the installation of every device that has sound into the NEXSYS system with load monitoring. This will bring a total of fifty five stereo amplifiers under the control of NEXSYS.

For the future, we are considering integration of our numerous live shows with an aim to amalgamating the booking computer system with NEXSYS to call snapshots with equalisation dependant upon numbers within the venue, adjusting the volume levels accordingly. This is again under development with Crest, and of course there are our sister sites of Morecambe and Southport.

Therefore, to finish, we envisage a single unified system under NEXSYS, that incorporates the complete sound requirements, now and future, of all three parks. Hopefully, as our current status has taken the better part of three years to complete, the next phase will be a little quicker.