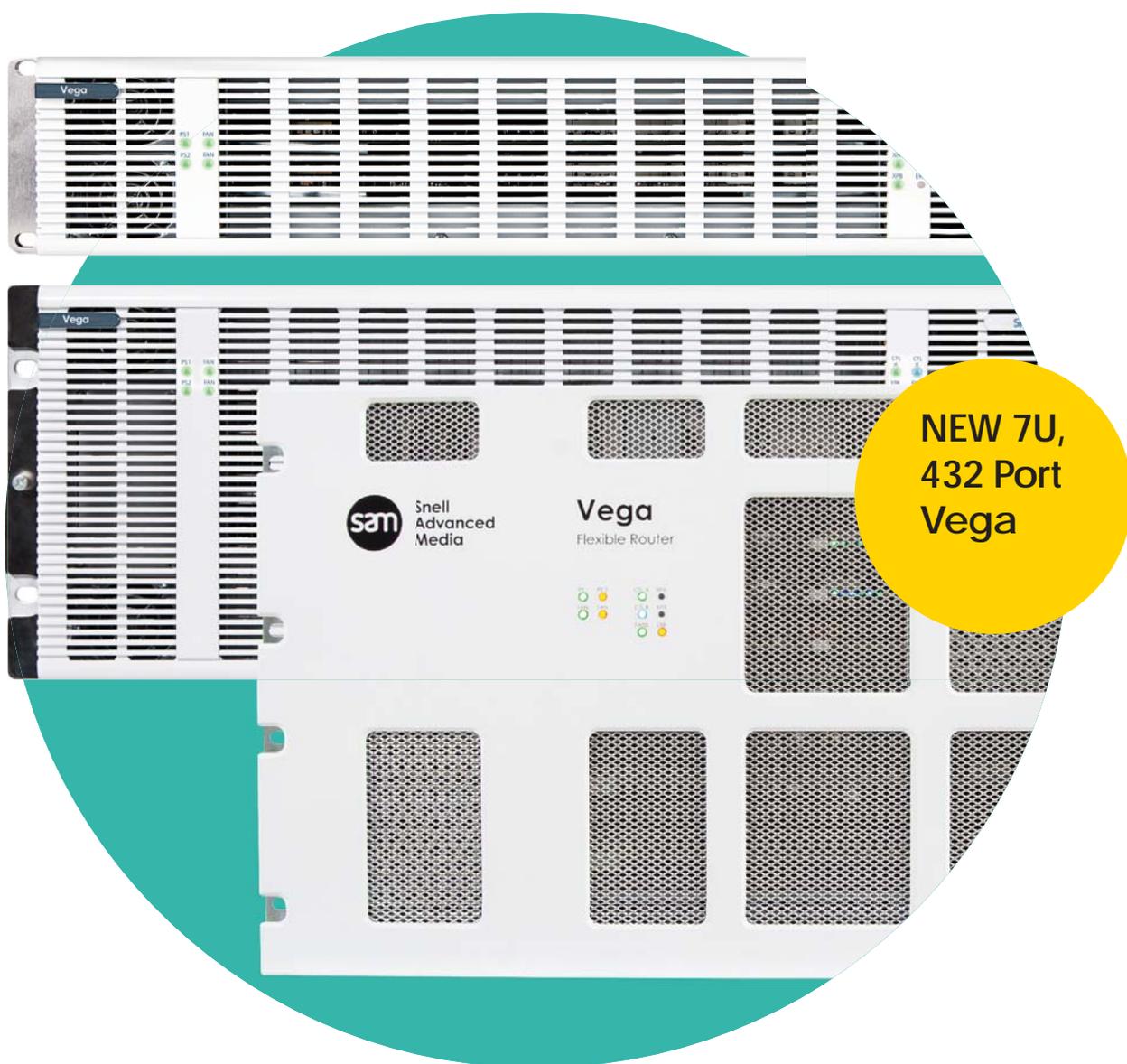


# Vega

## Flexible Assurance in Routing



Cost efficiency without compromise.  
New expanded family provides router confidence with ingenious ultra compact system design.



## Vega range core values

- Zero compromise in resilience and redundancy
- Cost effective and very high value for money
- Inherent flexibility in small & medium sized routing applications
- Wide choice in physical interface
- Versatility and speed in system configuration
- Options in user interface

Available in three frame sizes – 2, 4 and 7RU – Vega brings a new perspective to the classic in-facility baseband routing challenge. Even the smallest enclosure possesses features and functions that create capabilities normally associated with larger footprint, more costly third-party options.

Redundancy is a concept that has been designed throughout Vega, so you can configure just the right amount of back-up security that your operations require.

Key to Vega is its space saving characteristics. SAM's design engineers have developed a system solution where in a 2U rack you find functionality normally associated with a 3 or 4U rack. When you are operating an OB fleet or a Fly-away production unit this kind of space, energy and AC saving is invaluable.

The ability to control your router is key. Vega offers a number of control interfaces – a simple web user interface provides all the control screens that your operators need. Alternatively, Vega provides options for user interfaces that are found on far bigger routers, thereby providing continuity and consistency for your operational staff.

Asymmetric signal routing brings considerable configuration versatility. In short, you get – and pay for – exactly what you need. It's child's play to trade off inputs against outputs to create the I/O configuration you want. Similarly, the same input ports can be assigned to any combination of copper, co-axial and fiber connections.

**Vega. It sounds simple, but sometimes the simplest solution requires the best insight from the most creative minds.**

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For further information on award-winning SAM products visit:

[www.s-a-m.com](http://www.s-a-m.com)

## Introduction

# What is Vega and why is it important to your business?

The most ingenious designs take a complex issue and simplify it. And so it is with SAM's small to medium sized router family, Vega.

If you simply cannot afford for your router to fail, Vega is the solution. High level security and redundancy is designed from the ground up throughout the range.

If your budget is constrained by real-world issues then Vega provides you with a reliable, cost-effective solution

If your baseband infrastructure includes unusual configurations of mixed video, audio, copper and fiber inputs & outputs then Vega is the answer.

If rack space is an issue in your facility, fly-away or truck, you will not find a better alternative to Vega.

If you value adaptability in user interface, with web-enabled options, then look no further than Vega for your next router investment.

Developed by SAM's world leading team of development engineers, Vega offers three different router sizes – 2RU, 4RU and 7RU. These ultra compact form factors provide 96, 192 and 432 I/O ports, which can be asymmetrically assigned in any configuration to suit your operational needs.

**In developing Vega, our aim was never to produce the market's cheapest router. It was to develop a router family that clearly differentiates itself in terms of value for money. This is how we have achieved it.**

### Extensive redundancy options

Dual redundant crosspoints, frame controllers, power supplies and fans.

### Total asymmetric signal routing

Signal ports independently configured for use as an input or output.

### Flexible frame configuration for video and audio

Video and audio can be freely mixed in any combination of physical modules as inputs or outputs.

### Multiple connectivity options

HD BNC or SFP fiber for video, D type or HD-BNC for audio.

### Ultra compact frame

50% more signal ports than conventional coax router for same rack height.

### Entry level lower cost alternative

Dedicated 12-port 'coax only' rear modules (fiber connectivity not required).

### Comprehensive set of 'soft' and/or 'hard' control options

Intuitive software-based 'plug and play' control and monitoring system and/or 1RU and 2RU control panels.

## Vega – a new AV routing proposition

With three models offering 2RU - 96, 4RU - 192 and 7RU - 432 I/O ports, which can be asymmetrically assigned in almost any configuration to suit your operational needs, Vega from SAM offers you a new and radically different proposition in broadcast routing technology.

Unlike most of its competitors, Vega can combine video and AES audio on the same router panel. Ports can be individually configured as an input or output by the user in seconds.

Vega's asymmetrical routing capabilities empower users to specify most non-conventional router configurations with totally unmatched cost-efficiency.

Integrating copper and fiber inputs and outputs on the same panel is child's play.

With three rack sizes (2, 4 and 7 RU) you can standardize on one router family throughout your facility, safe in the knowledge that your capital expenditure is optimized within each individual installation.



**Critical routing**

**Typical scenario —**

A user requires routers for both 'On-Air' and non-critical work flow applications.

Reliability extensive backup and redundancy built-in are essential.

'Live' serviceability is a big issue!

Need to standardize on a single platform.

Space is limited.

**Vega solution**

SAM has designed Vega to offer the full range of options for maximum protection: dual crosspoints, dual controllers, dual power supplies and dual fans! All are 'hot' pluggable or replaceable!

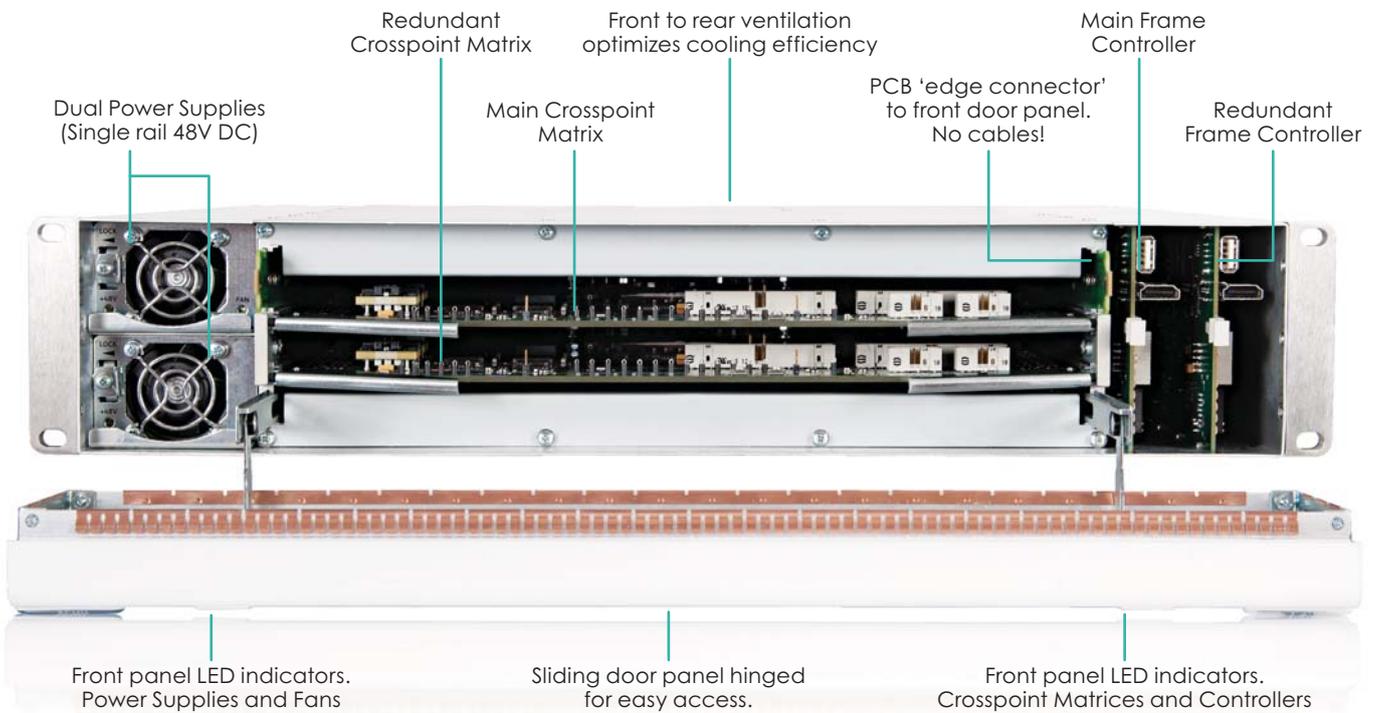
Vega uses proprietary algorithms, proven over many years, to continuously monitor every sub-assembly.

Users can add the options as necessary...Vega is a single solution for a huge range of routing applications.

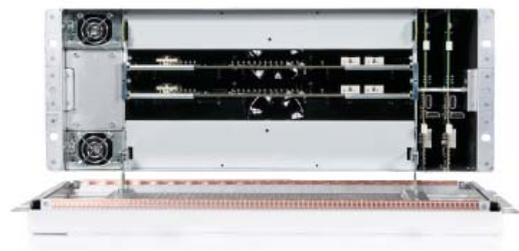
All this with 50% more inputs and outputs than a traditional router in the same rack space!

**Vega 2RU – 96 Ports**

**Open Architecture**



**Vega 4RU – 192 Ports**



**Vega 7RU – 432 Ports**



Flexibility at your fingertips...

Typical scenario —

SDI signal inputs and outputs are a mixture of copper and fiber over long and short distances.

In a few cases twice the number of outputs as inputs, so normally that means either a bigger router or adding racks of DAs.

Reference inputs are required as is signal 'OK' monitoring on the rear panel for identifying cable connection issues.

Vega solution

Flexibility with respect to coax or fiber connectivity is a corner stone of the concept behind Vega... just plug in the appropriate module(s) as shown below.

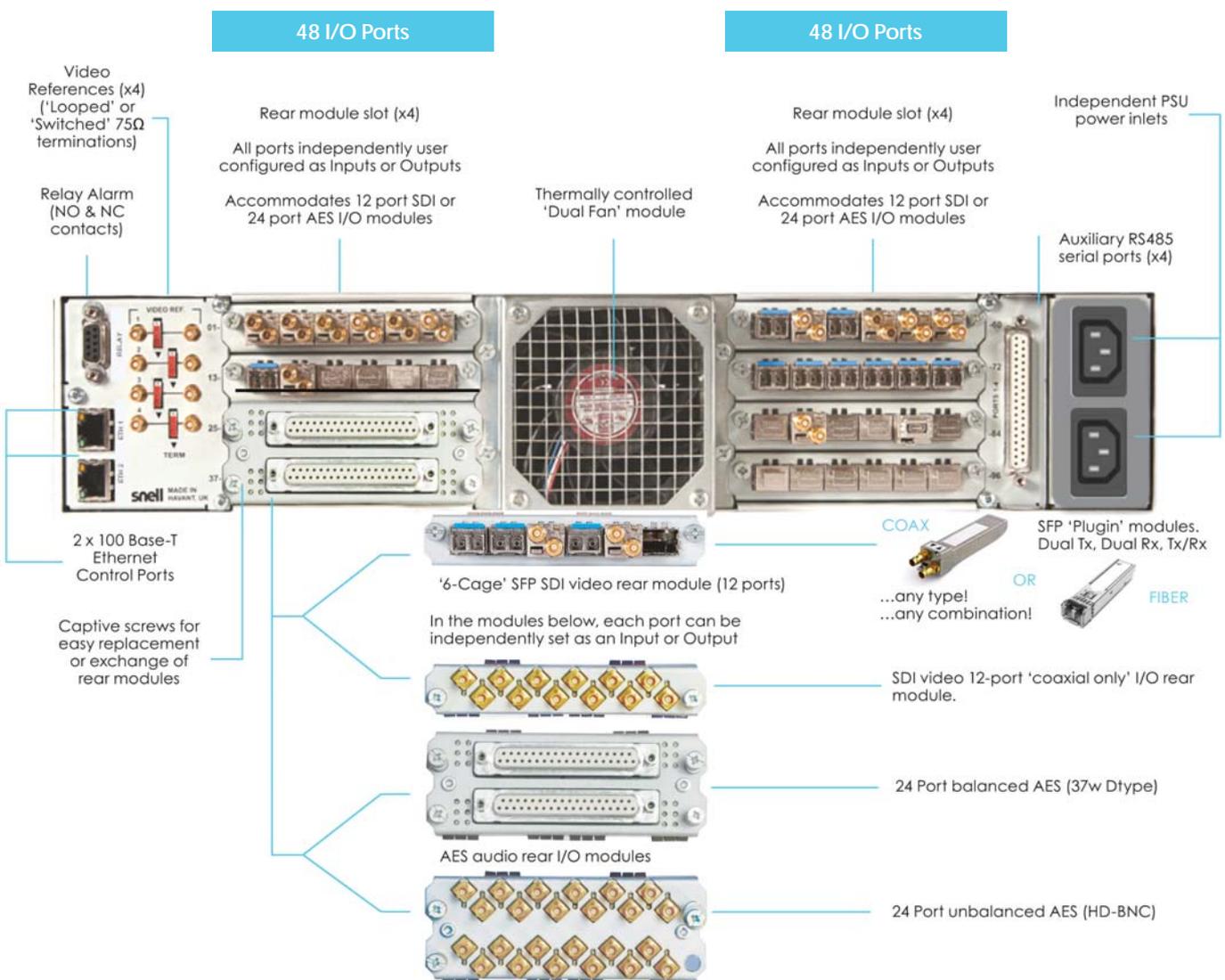
If you need more outputs than inputs then take a look on the next page... it shows just how flexible Vega is when it comes to input versus output configurations.

Four reference inputs have been included to accommodate requirements such as black and burst and/or multiple flavors of HD tri-level syncs.

For instant status indication on the rear panel Vega features multi-colored LED signal indicators on every port.

These can be switched to 'grid mode' to highlight a specific port.

Vega 2RU – 96 Ports



Vega 4RU – 192 Ports



Vega 7RU – 432 Ports



# Ports can be independently configured as an input or output by the user

## Typical scenario —

Most conventional medium size routers have an equal number of inputs and outputs, how is Vega different and why?

Anything clever usually means a big increase in price...any premium would have to pay for itself!

## Vega solution

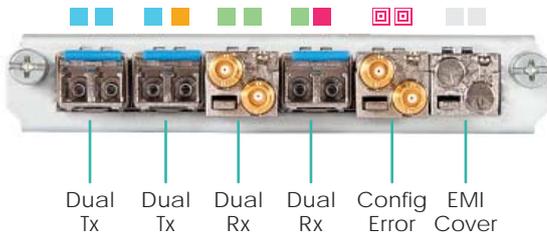
Vega can operate as a conventional router, but imagine if you could convert all your unused outputs to inputs or all your unused inputs to additional outputs! This is exactly how Vega is different...we describe it as 'fully asymmetric'...every port can be independently set up as an input or an output! For monitoring or distribution applications this minimizes I/O port wastage, where a traditional router of twice the size might be needed to implement the same system solution... Vega offers real savings in cost and space!

Also, there's no large price premium. Vega uses a larger cross-point device, keeping the incremental costs very competitive when compared with the cost of multiple surplus ports on a conventional router.

Vega is extremely easy to set up. In the 'set-up' section of the control software ports can be designated as either inputs or outputs. On saving the configuration, if a port has been designated as an input (receiver), but an output (transmit) SFP 'plug-in' module has been fitted in error, the control software will flag the problem suggesting the user either reconfigure the port or exchange the 'plug-in' for the correct (receiver) type.

In addition, every port has a single multi-colored LED indicator. Each color indicates whether a port is an input or output together with its current status. 'Flashing' red LEDs indicate that there is a configuration error and so any problems are immediately visible.

## Rear Panel LED Indicators



- Blue
- Amber
- Green
- Red
- Flashing Red
- OFF

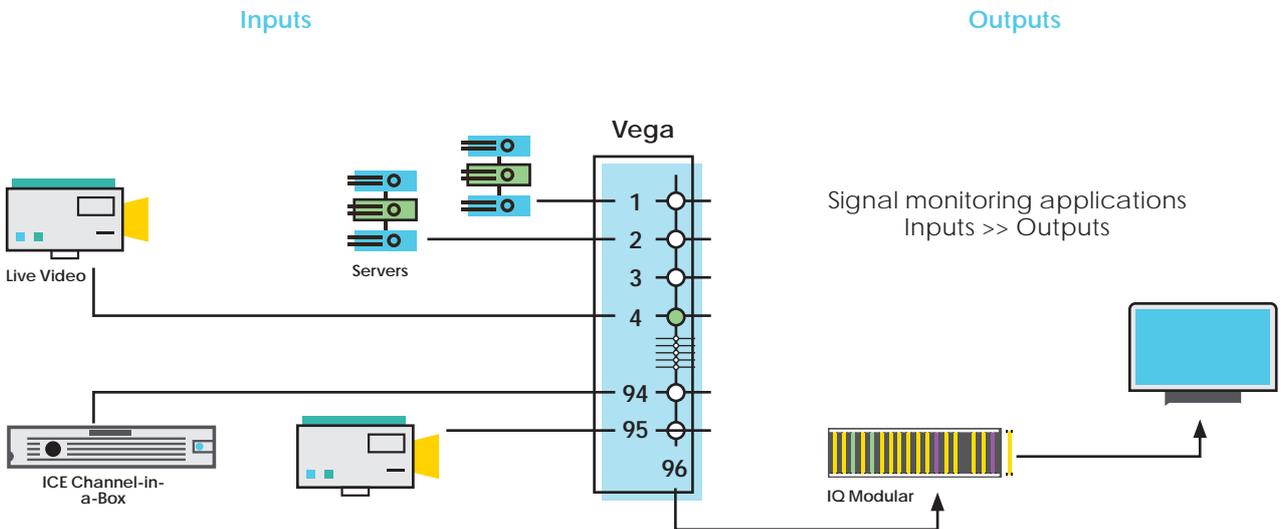
- Output (Tx) = 'OK'
- Output (Tx) = OFF / Laser Disabled
- Input (Rx) = 'OK' - Signal Present
- Input (Rx) = No Signal Detected
- ERROR = Config / Plug-in mismatch
- 'EMI & Dust' module fitted / No 'Plug-in'



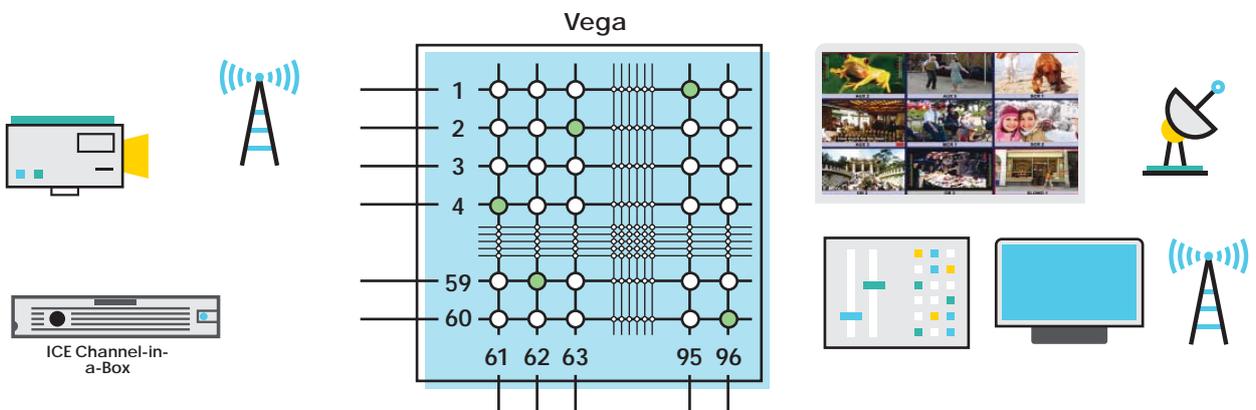
High level security and redundancy has been designed into Vega from the ground up

Asymmetric formats, all user configured from one extreme to the other!

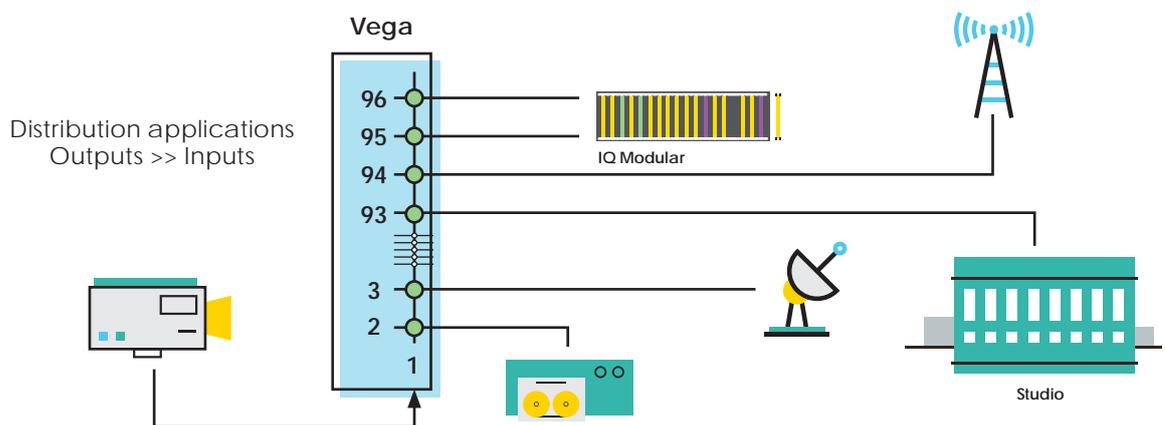
One extreme...95 Inputs x 1 Output



Through all the options...94 x 2, 93 x 3...49 x 47, 48 x 48, 47 x 49 etc...2 x 94



To the other extreme...1 Input x 95 Outputs



# Video and AES audio can be mixed in any combination in a single frame, providing a uniquely flexible architecture

## Typical scenario —

"I have a mobile production system and need to route video and audio simultaneously.

I need the flexibility to be able to add more camera and mic feeds very quickly, and don't want the hassle of replacing or moving boards on site to do this."

## Vega solution

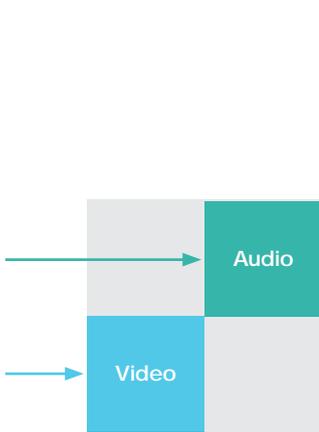
Vega can be equipped with any combination of video and audio modules. A 96, 192 or 432 port Vega, equipped with a combination of video and audio ports, will route any format of video, and AES or compressed audio, allowing multi-format, multi-level routing. Video can be equipped with fiber interfaces for longer runs from remote cameras, with coax used for local connections – also mixed in any combination.

If ports need to be changed from inputs to outputs (or vice versa), this can be done in a few minutes using a simple web-based configuration screen on any PC.

So if one day you're covering a conference, with a couple of cameras but need to drive multiple monitors and streaming encoders, then the next day it's sports, with many more camera inputs but only a few outputs to a switcher, changing the Vega to meet the new requirement is a simple configuration change, not time consuming hardware card swaps.

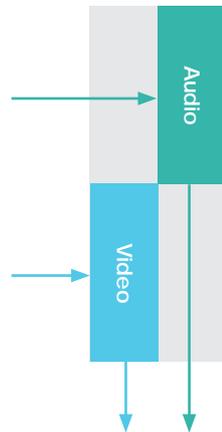
Control of multiple signal formats is also easy. Vega automatically identifies video and audio cards, and port direction, and creates a web-based control panel that's dedicated to the 'current' arrangement. The web panel allows routing of video and audio, as stereo or mono. Change the configuration, and the panel changes to match it!

## Conventional 'square' Architecture

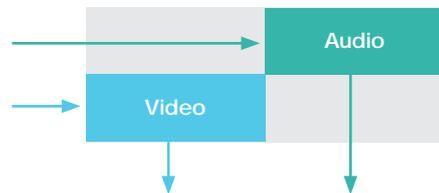


Fixed input/output arrangement

## Vega Mixed Signal Flexible Architecture



Any shape, from this...



to this

# All coaxial copper and fiber boundaries can be bridged without external media converters.

**Typical scenario —**

A final decision on where to use optical fiber connectivity in place of coaxial copper is not yet made. Coax could be used between equipment in the same racks with fiber for all other connections...or it could be that fiber is only used between floors, buildings and remote venues!

We are still evaluating all the options and it's delaying equipment purchase.

**Vega solution**

With Vega all coaxial copper and fiber boundaries can be bridged without the need for external media converters.

All signal inputs can be independently configured for coax or fiber using the appropriate SFP 'plug-in' modules.

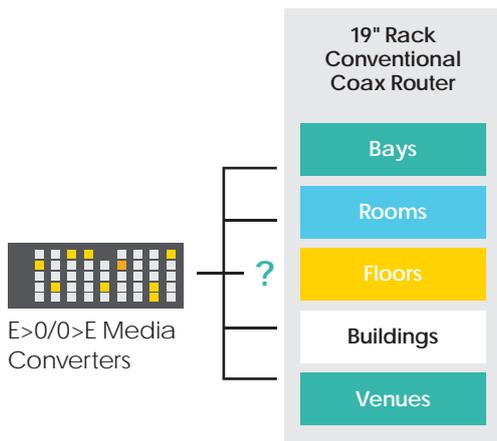
This means that a final decision on some or all of the physical media types can be deferred. Indeed unused ports (or receptacles) can remain empty until required. Simply purchase the additional modules at a later date.

**Vega covers all the options – past, present and future**

- Traditional installation using mainly coax with fiber for 'long haul' links
- Integration of 'legacy' equipment to new fiber plant
- Increase in 'useable' ports on equipment with dual media I/O
- Modern 'all fiber' plant. Some coax connectivity between 'nearby' equipment.

**Conventional Coax Router**

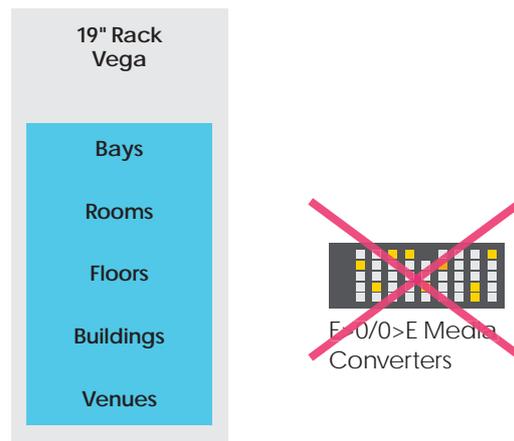
When connecting to a conventional router the number of coax to fiber media converters required will depend on the fiber connectivity policy. This involves additional planning, rack space and cost.



Required at single or multiple boundaries!

**Vega**

Vega is transparent to coax/fiber boundaries. The required media for every connection can be independently set using SFP I/O 'plug-in' modules...making it easy to change as your plant evolves!



Redundant for all router connections!

# IP, Software and Hardware control options

## Typical scenario —

“Vega looks like the perfect solution for us. I just need to know what control and monitoring options are available?”

We need both ‘hard’ and ‘soft’ control for the new installation, but we’d also like to install Vega at an older existing site nearby...they use a third party control and monitoring system.”

## Vega solution

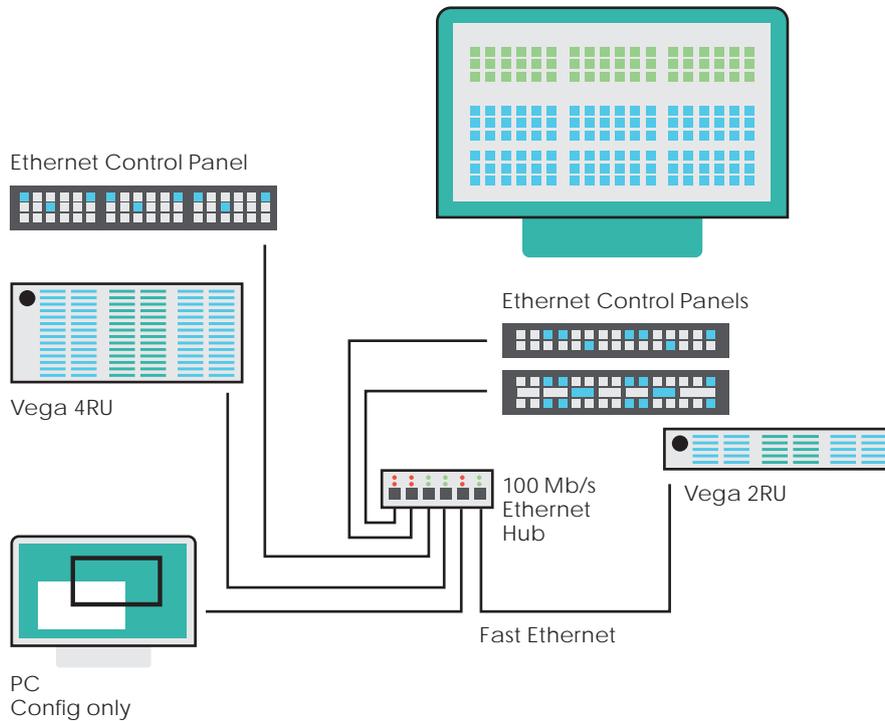
SAM's established pedigree in conventional routing systems means we can offer an extensive range of control solutions which have been enhanced to accommodate Vega's unique features and benefits.

A browser launched ‘plug-and-play’ GUI provides intuitive configuration and control via a PC. In addition 1RU and 2RU control panels are available for connection over Fast Ethernet either directly or via standard hub and/or IP routing devices.

Vega uses standard message protocols and therefore implementing third party control is easy.

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## Example network options



# The Vega Routing Family

Vega brings a new perspective to the classic in-facility baseband routing challenge.



