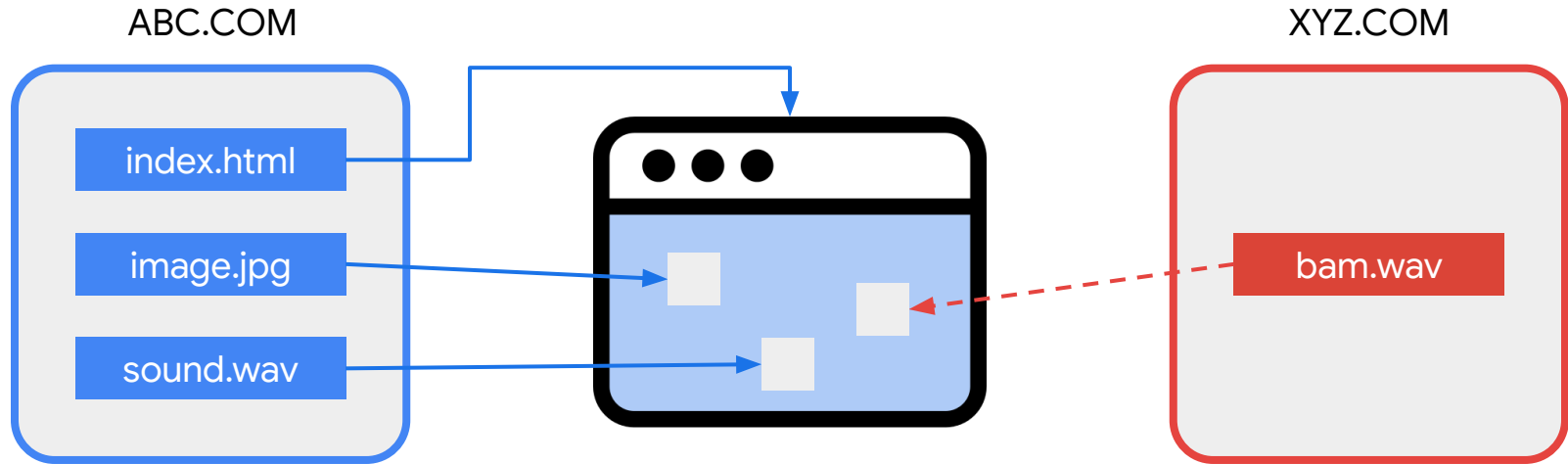


Web Audio Codelab #4

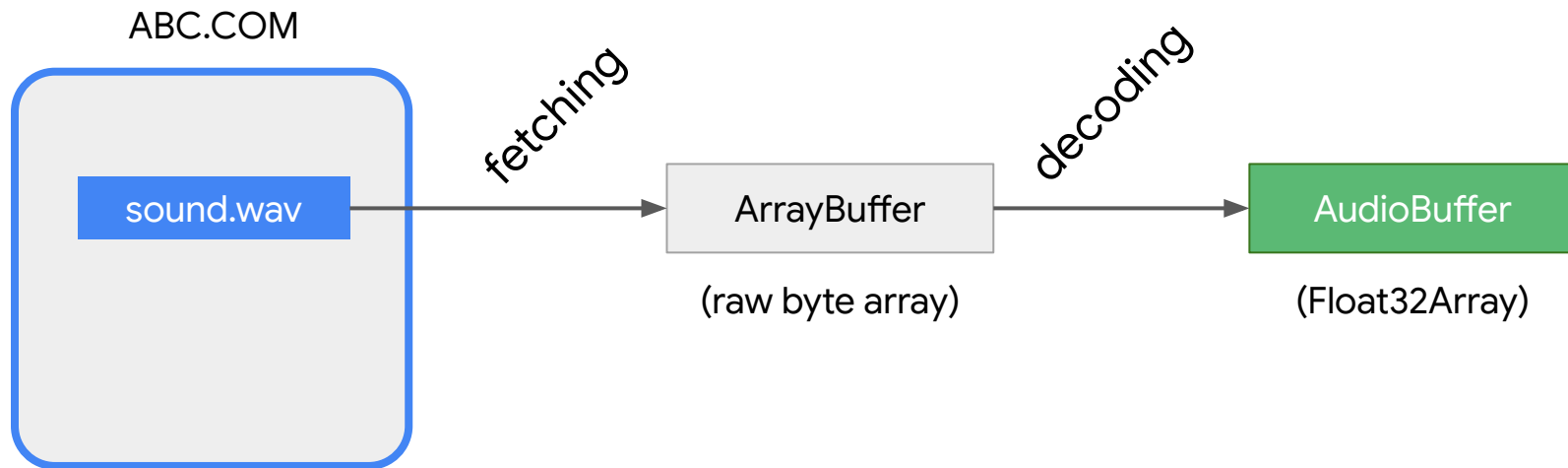
Sample, Filter, and Delay

Music 220A Summer 2021

CORS: Cross-Origin Resource Sharing

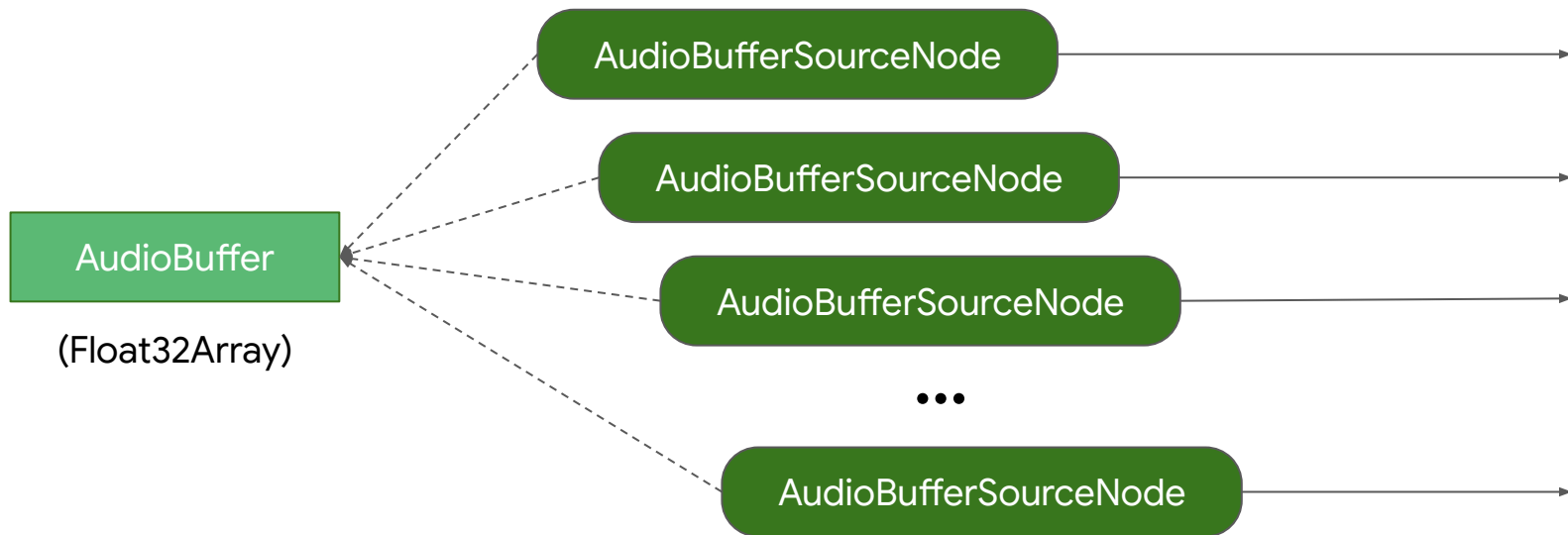


AudioBuffer



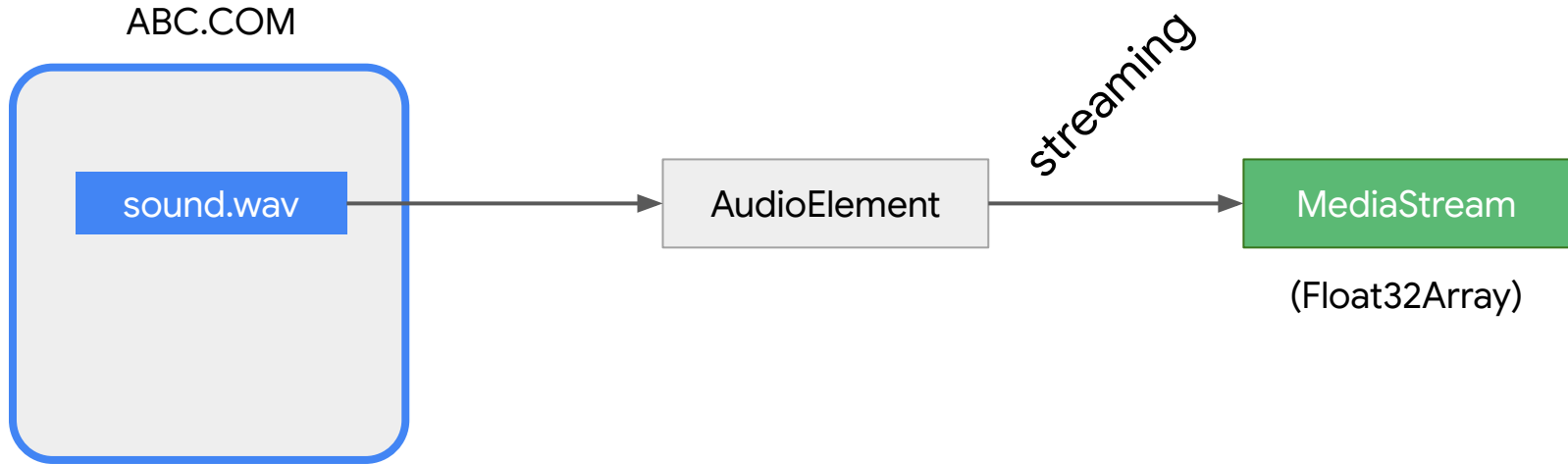
```
const response = await fetch(url);  
const arrayBuffer = await response.arrayBuffer();  
const audioBuffer = await audioContext.decodeAudioData(arrayBuffer);
```

AudioBufferSourceNode

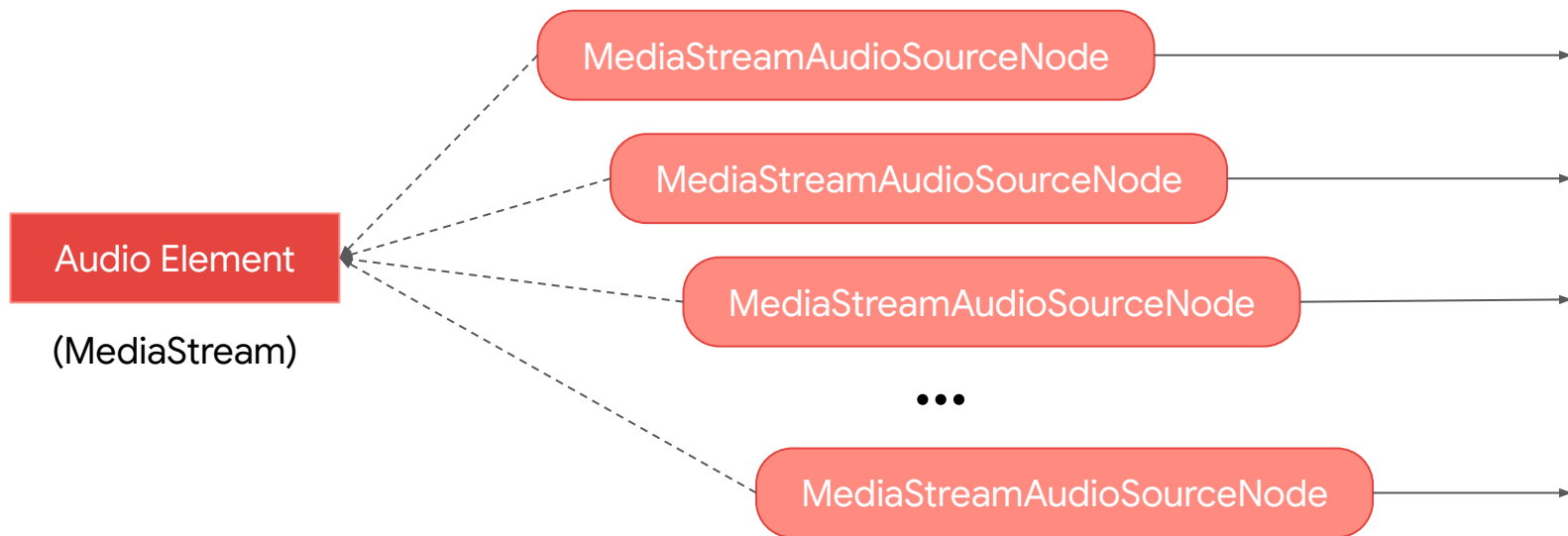


```
const bufferSize =  
    new AudioBufferSourceNode(audioContext, {buffer: audioBuffer});  
const amp = new GainNode(audioContext);  
bufferSource.connect(amp).connect(audioContext.destination);  
bufferSource.start();
```

MediaStream



MediaStreamAudioSourceNode




```
const audioElement = new Audio('./media/loop-1.wav');
audioElement.crossOrigin = 'anonymous';
audioElement.addEventListener('canplaythrough', () => {
  const mediaStream = audioElement.captureStream();
  const streamSource =
    new MediaStreamAudioSourceNode(context, {mediaStream: mediaStream});
  streamSource.connect(context.destination);
  audioElement.play();
});
```

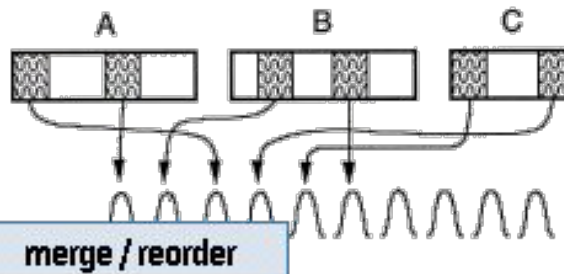
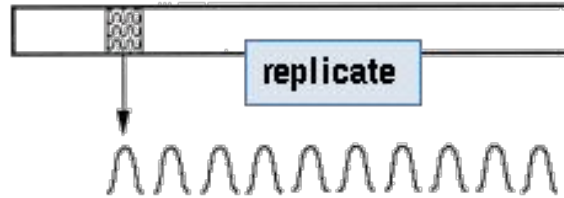
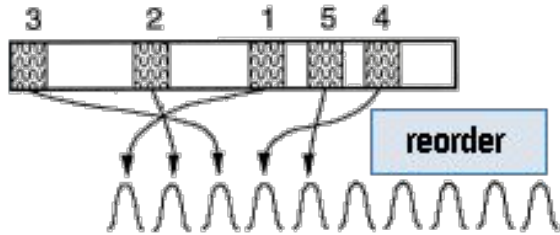
AudioBufferSourceNode

- (AudioParam) playbackRate
- (AudioParam) detune

Granular Synthesis

Time granulation of sampled sounds

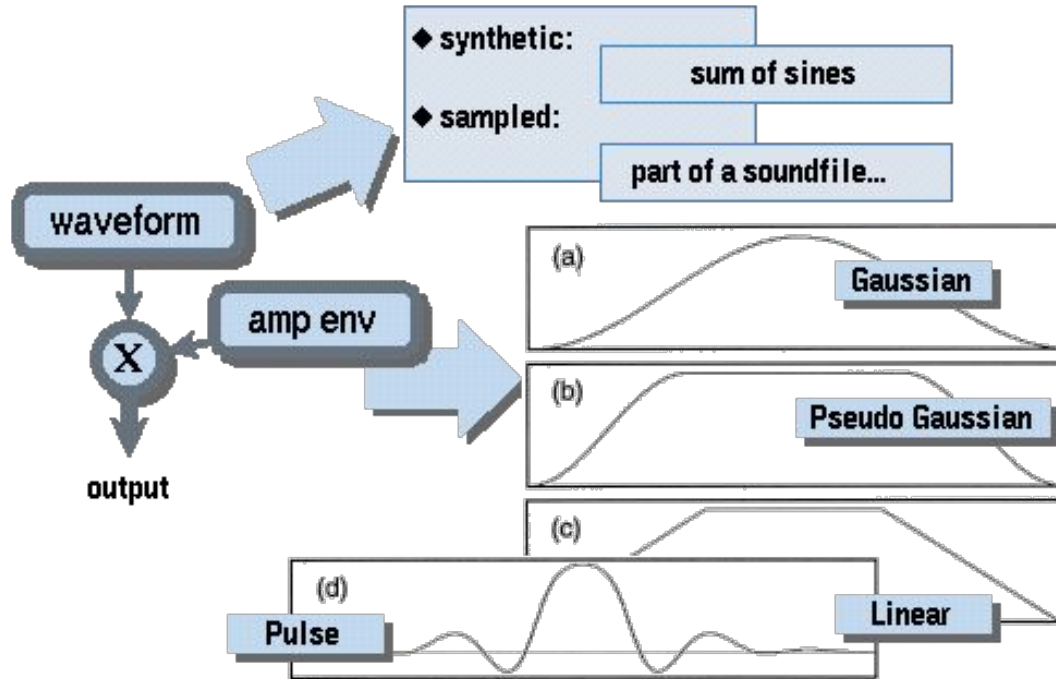
time granulation of sampled sounds
process sounds through a logical
trashing machine...



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[Nando's slide](#)

Granular Synthesis

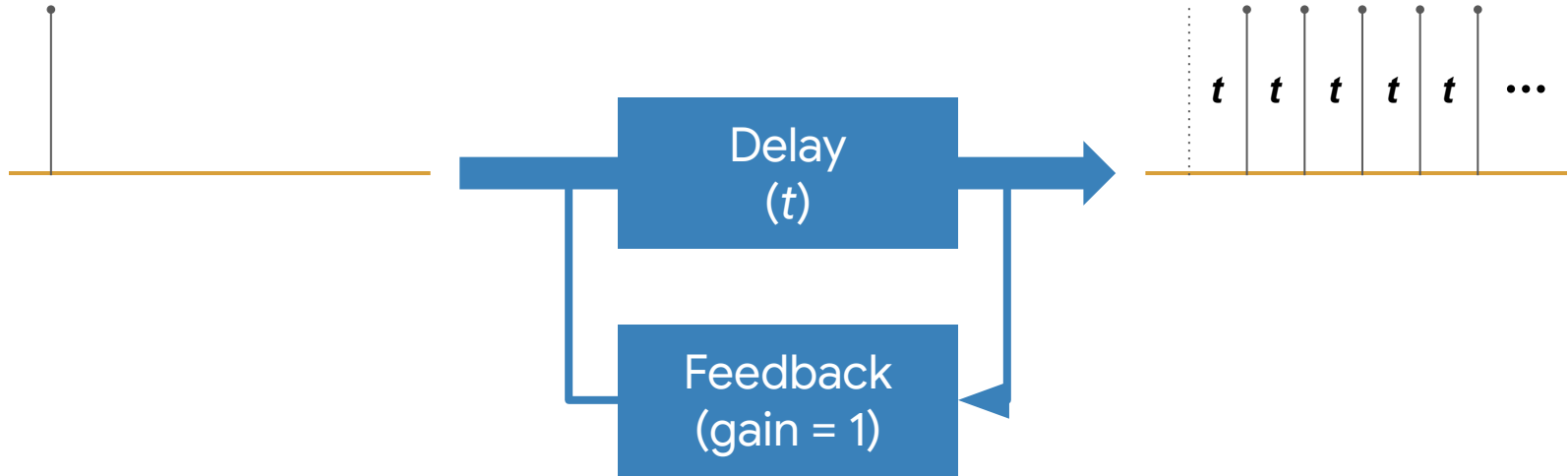


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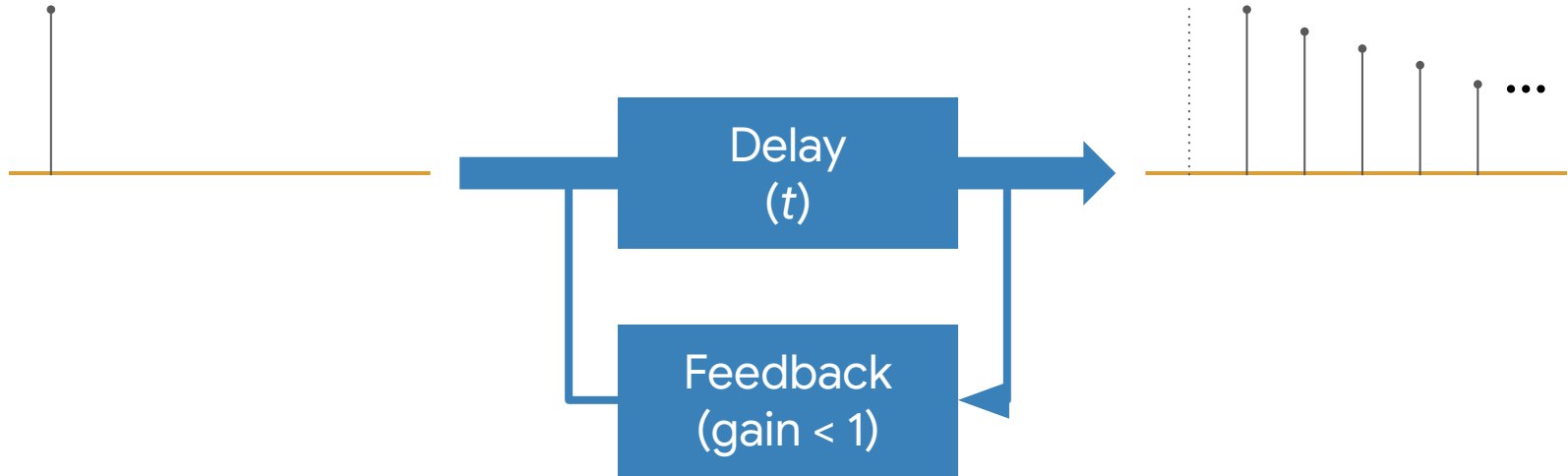
Delay



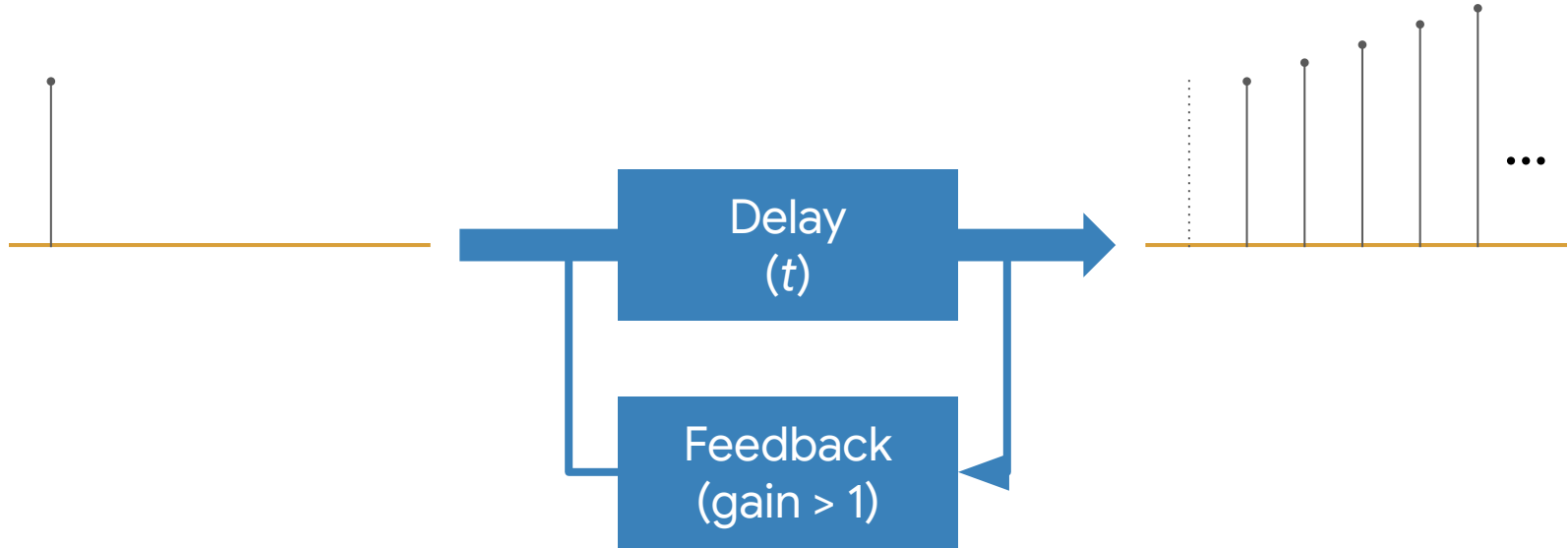
Delay + Feedback



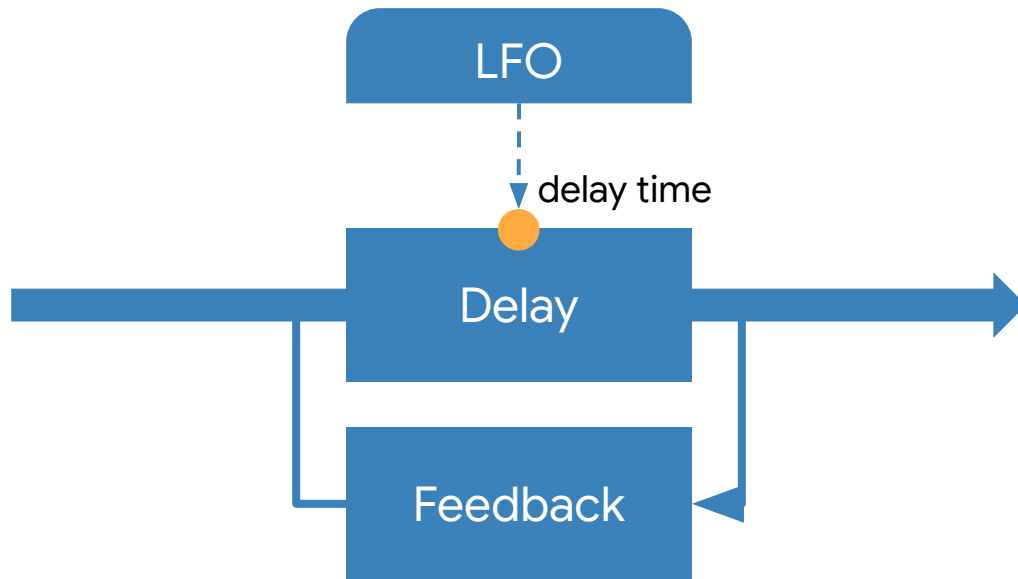
Delay + Feedback



Delay + Feedback



Delay + Feedback + Modulation



Delay effect range

Table 7. Approximate effect delay range in milliseconds.

Effect	Onset	Nominal	Range End
Vibrato ⁸³	0	Minimal	5
Flange	0	1	10
Chorus	1	5	30
Doubling	10	20	100
Echo	50	80	∞

Examples:

Sample, Filter, and Delay

[Looping fun](#)

[Simple drum sampler](#)

[Roland TR808 on Web](#)

[Filters in the real world](#)

[Filter sweeping](#)

[Delay-based Effects](#) ([source](#))